Towards Equitable and Resilient Climate Planning:
How Can Scarborough Adapt? Lessons Learned from New Orleans

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Abstract

My paper outlines three recommendations—tangible solutions— for more resilient climate justice planning in Scarborough, a large community of the city of Toronto, Ontario. Scarborough is facing challenges of a lower-income population and a higher risk of climate emergencies than other residents of Toronto. My research focused on New Orleans as an example of a place that struggles with equitable and resilient climate adaptation planning. Hurricane Katrina and its aftermath have given scholars and planners significant lessons about climate adaptation planning. Social equity and climate change are not well integrated in planning scholarship and my recommendations are intended to better integrate these important issues.

The planning issue addressed in this paper is how to focus on climate change for equity-seeking groups, and how critical this is in achieving meaningful solutions for at-risk groups faced by climate change. The research questions are: 1. In what ways can climate change planning be more equitable and resilient? 2. How can plans, processes, and interventions support equitable and resilient climate change planning? The key debates in this planning issue are 1. How best to undertake climate change adaptation planning in the suburbs, and 2. How to create more equitable climate adaptation plans. This paper is focused on recommendations for just climate adaptation planning for Toronto, and long-term sustainable community development strategies. Through writing this paper, I have sought to understand more deeply how climate adaptation plans and planning can build capacity for climate action simultaneously at both the municipal and higher levels of government. The effects of climate change significantly and disproportionately affect vulnerable groups such as racialized communities and low-income groups who are less able to deal with extreme heat and cold, drought, and flooding. Vulnerable populations are the canaries in the coal mine in terms of climate change, as we already are seeing through displacement and other impacts. My three recommendations are to 1. Facilitate inclusive and meaningful community-based planning, 2. Plan and develop inclusive social infrastructure, and 3. Implement integrated and localized plans; but my overarching question remaining is the governance in the climate planning process, and how local government structures may be the main barrier to local municipal efforts.

Foreword

My Plan of Study consisted of four Components of Area of Concentration, with various Learning Objectives within each Component. My Components consisted of 1) Land Use Planning and Development, 2) Environmental Policy, 3) Retrofitting Suburban Form, and 4) Climate Adaptation Planning. Although there were various courses and experiential learnings, the major research completed for this Major Paper was pertinent in fulfilling learning objectives for all four of my Components of Area of Concentration and fulfilling the MES requirements (Planning) degree. In conjunction with my other identified Learning Strategies, this research paper was principal in fulfilling the Learning Objectives in my Plan of Study.

One of the most, and arguably the most important, Learning Objectives under Component 1 (Land Use Planning and Development) was LO 1.1: To obtain the knowledge and skills necessary to meet the program requirements of the Canadian Institute of Planners and the Ontario Professional Planners Institute for Candidate membership. The role of my Major Research was vital in achieving these skills and developing knowledge to become a Registered Planner. The development of my major research paper throughout the program has advanced my knowledge of municipal climate plans and processes, specifically how to equitably adapt to climate change, using case studies (Scarborough and New Orleans). The final recommendation provided in this paper is helpful for planners to utilize in their process, advancing my capabilities as an urban planner.

Another important Learning Objective in my Plan of Study under Component 2 (Environmental Policy) was LO 2.1: To develop a strong knowledge of how environmental issues are dealt with by different levels of governments and organizations in order to engage with climate policy-making and implementation. I felt through the development of the major research paper, I was able to advance my knowledge of analyzing municipal climate plans and processes, specifically in achieving equitable resilience to climate change, using the case study examples in this paper. The paper was able to help understand the more significant challenges facing communities such as Scarborough and New Orleans when environmental policy and planning seemingly focuses on large city cores. The proposed final recommendation of this paper analyzes further issues of governance in the policy and planning process for climate change.

Under Component 3 (Retrofitting Suburban Form), the Learning Objective I felt was essential to achieve was LO 3.2: To obtain practical knowledge of how to make suburban cities more transit-oriented and walkable in order to reduce suburban traffic and address other suburban environmental issues. This paper aimed to directly target this Objective and the entire Component of understanding and adapting suburban form through the second proposed recommendation of Inclusive Social Infrastructure. Using the case study of Scarborough throughout this Major Paper helped me to understand a suburban example and aim to achieve just climate resilience through infrastructure. Additionally, seeking resilience through infrastructure is essentially retrofitting the current built form and infrastructure (or lack of) in place. This paper and research leading up to it gave a strong understanding of what planning for climate change looks like in a suburban scenario, which is helpful given the diversity of areas and communities across North America, as cities are not the only places that need help just climate resilience.

Finally, under Component 4 (Climate Adaptation Planning), I felt one of the critical Learning Objectives outlined was LO 4.2: To obtain expert knowledge of the best processes of developing and implementing climate change adaptation plans while incorporating both expert environmental goals and community consultation. A key pillar through developing this research and Major Paper was to balance resilient climate planning with environmental justice. Each recommendation aimed to tackle both goals equally in order to achieve overall just climate resilience. This paper achieved this Objective by understanding the importance of community planning, engagement while balancing essential planning practices, such as infrastructure and climate plan modelling and organization. This paper and my research have endeavoured to incorporate climate adaptation planning best practices in every step of the solution.

In conclusion, this Major Paper, and Major Research for the paper, was vital in fulfilling the MES (Planning) degree requirements. As discussed, the Major Paper helped achieve more than one Learning Objective for all four of my Components of Area of Concentration. When reviewing the original goals of my Plan of Study and Research Proposal, I feel confident in the knowledge and experience achieved through the process of completing this Major Research

Paper. My Plan of Study has stated, under Area of Concentration, that I wish my MES program to be centred on equitable and resilient climate adaptation planning, focusing on the suburbs in Canada. I feel I have achieved the established goals set out in the Plan of Study, and I am achieving all the research goals presented in my Research Proposal.

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I would also like to thank my family and partner for all the endless support throughout my MES degree. Thank you for listening to my worries and big ideas throughout this process. I am so thankful.

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Introduction

My research outlines three tangible recommendations, and a future recommendation for more resilient climate justice planning in Scarborough. My recommendations provide urban planners with tangible solutions, and I use the case study of New Orleans for background on equitable and resilient climate adaptation planning, and then use the example of Scarborough to apply these recommendations. The final recommendation at the end of the paper provides a direction for future research and development. Scarborough is facing challenges of a lower-income population and a higher risk of climate emergencies, putting these vulnerable populations at an even higher risk than other residents of Toronto (Bulkeley 2013, 916). New Orleans is a case study of climate adaptation planning and climate equity planning. Hurricane Katrina and its aftermath have given scholars and planners significant lessons about climate adaptation planning, providing a background for recommendations to be made for Scarborough (Filion 2001, 142).

My research is centred on equitable and resilient climate adaptation planning. I explore how the suburban area of Scarborough, within the City of Toronto, could be planned and designed to become more resilient to climate change. Drawing on the experience of the City of New Orleans, I explore what equity means concerning climate adaptation planning and how those critiques and potentialities might help improve planning in the Greater Golden Horseshoe. I undertake an environmental and social history of planning and development in Scarborough and consider what kinds of planning interventions might support a more resilient future.

Scarborough is currently facing a climate crisis. The crisis consists of urgency to reduce emissions for long-term mitigation and adapt to current and fast approaching climate emergencies of flooding and other climate and weather changes (City of Toronto, 2019). As a case study, Scarborough is significant since it is a classic post-war suburban built form. Demographically Scarborough has shifted through the years to now consist of a large portion of Canada's immigrants, people of colour, and those of lower socio-economic situation, similar to the demographics in New Orleans (Filion 2001, 142). The division of Scarborough within the City of Toronto is a heavily suburban area in some ways and a classic example of post-war suburban development (Scarborough Township, 1966). Scarborough has a vulnerable population, who will face higher levels of injustices during climate change and climate emergencies

(Bulkeley 2013, 916). Furthermore, the environmental feature of the Scarborough Bluffs creates a more pressing climate risk (Filion 2001, 142). Currently, their planning process does not consider the need to address and protect this area in the City of Toronto and can look towards the City of New Orleans for ideas to support this process. This research seeks to address these deficiencies and aid in solving them.

New Orleans is a learning example for Scarborough to draw on. New Orleans is a case study example of a colonial city with significant historical connections to racist planning practices (Campanella 2008, 120). As in the surrounding Southern American states, racism has been a critical defining feature (Campanella 2008, 114). Colonialism and post-colonial racism still prevail from the historical planning practices in the city, making New Orleans a complex case study example (Campanella 2008, 118). Combined with the events of Hurricane Katrina in 2005, New Orleans provides a detailed look into the profound implications of colonialism and racist planning and these practices contributing to environmental racism (Campanella 2008, 114). New Orleans suffers environmental racism and injustice, causing severe implications for minority and low socio-economic residents in the City (Bulkeley 2013, 916). New Orleans also has various neighbourhoods and districts that make up a suburban cityscape, drawing further similarity to Scarborough. These key features can provide more insight when looking to aid in recommendations for Scarborough.

When examining climate injustices and how the effects of climate change significantly affect vulnerable groups such as immigrants, people of colour and low-income groups disproportionately, these groups make up a large portion of both New Orleans and Scarborough (Clark 2007, 163). Historical colonial practices and environmental racism shape New Orleans, and implications of injustice prevail today, causing severe implications for minority and low socio-economic residents in the city, similar to the experience of those who reside in Scarborough (Bulkeley 2013, 916). Although both case studies share many similarities, it is crucial to account for differences across the American and Canadian contexts. As appropriate, efforts and experiences in the City of Vancouver help to ground the research in a Canadian context.

The background of the New Orleans experience can be drawn upon when trying to solve and understand the series of problems from the Scarborough experience. Based on this background, the research in New Orleans can help guide this process and recommendations to achieve climate justice. New Orleans has historically gone through environmental emergencies and injustices, and these provide valuable lessons for planning in Scarborough. I seek to understand through my research how planners can better include climate justice issues in climate adaptation in New Orleans and Scarborough. As discussed and appropriate, the City of Vancouver may be referenced as a case study example to draw similarities to the Canadian context and triangulate this study.

The specific research question that guides the research inquiry is as follows:
In what ways can climate change planning be more equitable and resilient? How can plans, processes and interventions support equitable and resilient climate change planning?

The central missing gap in the literature is the lack and the need of local community-based solutions integrated with more significant (climate) justice, adaptation and mitigation plans at the local level. Often the prior is framed at a local level, working with communities on changes and proposals that are happening, and the latter occurs with a top-down approach on a much larger Provincial scale. Even city-led initiatives fail to hone in on specific areas such as Scarborough as its own entity as well as vulnerable communities within Scarborough. My three recommendations are to 1. Facilitate inclusive and meaningful community-based planning, 2. Plan and develop inclusive social infrastructure, and 3. Implement integrated and localized plans; but my overarching question remaining is the governance in the climate planning process, and how local government structures may be the main barrier to local municipal efforts.

This paper is structured by first outlining my research design, which includes my methodology, reflection and a list of interviews completed. What follows is a list of definitions to better address the goals of the recommendations provided. I then describe a history and background of both Scarborough and New Orleans to provide a better context for the recommendations. Finally, I provide three tangible recommendations, each presented in the following format: I first discuss the recommendation, then the Scarborough context, New

Orleans background (and in one instance the Vancouver background), and close with the recommendation's goals. I conclude with a final recommendation for future research on the issues discussed throughout the paper.

Research Design

The methods I used to gather and analyze the data for my research were based on a qualitative approach. The main methods utilized were: a) literature and scholarly review, b) policy review, c) interviews, and d) case study examples, all of which played a role in the completion of the paper.

Methodology

My research explores how the suburban area of Scarborough, within the City of Toronto, could be planned and designed to become more resilient to climate change with an equity lens. I have explored what equity means concerning climate adaptation planning and how those critiques and potentialities might help to improve planning in the Greater Golden Horseshoe. I undertook a brief environmental and social history of planning and development in Scarborough and considered what kinds of planning interventions (through recommendations) might support a more resilient future. I draw on the experiences of the City of New Orleans, as climate justice has been a focus of scholarly research and planning interventions, especially since Hurricane Katrina in 2005. Furthermore, I draw upon an extensive scholarly review where climate justice has been discussed, and planning interventions proposed or undertaken apply to Scarborough's challenges.

In order to achieve the above goals, I have identified and reviewed the information and data in regards to climate change resilience and equity, forming a history of the topics, especially in terms of the two case studies at hand, New Orleans and Scarborough. I found it helpful to use Google Scholar, York library databases, government documents, cities' websites, Toronto archives, and other archives. To understand the current plans and practices, utilizing websites of both cities was necessary. To gain a more detailed understanding of the histories of both cities, archival documents and other government documents were necessary, using published plans and

policies. When presenting recommendations, I found that literature from the York library and Google Scholar were the most appropriate. The research heavily explores both the environmental and social history of planning and development in New Orleans and Scarborough, using literature and policy and planning documents. The policy and planning documents helped to paint a picture of past and current climate resiliency and justice efforts in both cities. The case studies helped ground and guide the research in order to respond to the research question effectively. I was most interested in identifying contemporary concerns raised about climate justice in Scarborough (as well as Ontario and Canada generally), and what the concerns are that have been raised in New Orleans, and aimed to outline what kind of solutions are being proposed. I also aimed to draw upon experiences from adaptation efforts in other suburban areas as they come across (such as the City of Vancouver).

The first step in the research process was finding and reviewing all background information and documents related to climate adaptation and justice in Scarborough. I then reviewed scholarship and professional studies about climate justice and planning interventions in New Orleans, mainly post-Hurricane Katrina. During this process, it was imperative to find background information and documents to find where Scarborough's issues arise in the context of New Orleans and what has been done in terms of adaptation and justice since their most recent climate emergency. In order to make the appropriate connections, I took a significant amount of time to research and identify literature that discusses and links adaptation, climate justice in case studies. The literature was constructive in highlighting the issues at hand and making connections for each recommendation. This part of the research helped to answer what problem I am trying to solve and how New Orleans can be helpful when discussing the issues faced in Scarborough and creating those connections. During the beginning of the research, I also completed a secondary scan of whether this work has been done before, and if so, to what extent. The findings (which were quite slim) helped in knowing how to shape the research design and methodology moving forward appropriately. I asked myself some guiding questions during this process: how can this research create a methodological method/question to help solve the problem and answer the research question?

Using all this information and research, I then formed three recommendations and planning interventions that I felt might support a more resilient and just future for Scarborough and other suburban communities generally. I then completed interviews with professional planners and experts from New Orleans, Toronto, and other areas to ground my research more effectively. Despite the positive outcomes and goals achieved through this Major Paper, some challenges and gaps remain. Although I set out to relieve these challenges by discussing the next steps in the conclusion of this paper, discussed below is a reflection on what I would have done differently and what I felt turned out well during this extensive research process.

Reflection

As mentioned, I did feel that I needed more research or work to make this Major Paper fully complete. For example, I wished to have completed some review and analysis of other cities, such as the City of Vancouver (in greater detail than has been provided) and New York City. International examples may have been helpful and could have clouded the North American context the paper was set in. I believe it may have been helpful to help find links to ground the connections and triangulate the research. The vision I had was to use these external examples to create a best practices checklist or methodology table to compare and contrast approaches to justice in climate adaptation planning. I believe this would be helpful to work in tangent with the proposed recommendations for planners to tackle inequitable climate adaptation.

Due to the COVID-19 pandemic, there were gaps in this research that were alleviated by adding more research and scholarly sources but would have helped advance this paper. For example, due to the restraints, site visits were challenging, and in some cases impossible, to complete. The exceptional circumstances did not allow for site visits to New Orleans. Due to my location for some time, site visits to Scarborough were also not completed. Although I felt this research did not necessarily need more than five interviews, I was able to contribute more to the research paper. I also maintained my initial goals of undertaking interviews with planners in New Orleans and Scarborough and others involved in climate planning, as determined by my literature review. I originally wished to obtain approximately five involved or active participants who would contribute to further understanding and linking the case studies and further

contributing to recommendations to be made. I completed an Application to Conduct Human Participants Research (HPRC).

My review maintains that site visits would still be helpful in achieving more hands-on information but not crucial perhaps to understanding what is happening. Interviews and discussions with planners from both cities were a useful aid in addressing past and current planning concerns related to climate justice and developing a further understanding of their specific planning approaches in my analysis. As discussed, the COVID-19 pandemic placed many strains on the site visit process and other components of the process of this program from March 2020 until the present.

Although there were restraints and some failings through this process, some components of this research and the Major Paper, I found, turned out very well. Although designed to be general, I believe that my recommendations provided are practical in application to specific cities. I found the connections and background provided by Scarborough and New Orleans gave a practical background that I was unsure would have been achievable through a less grounded scholarly research paper. I found the bridging of scholarly sources and hands-on policies and plans a defining feature in achieving this. Furthermore, I was not expecting to achieve a final and connecting recommendation that would bridge the paper and provide avenues for future research. As discussed in conclusion, the ideas for future research are identified, opening doors for new research and ideas for solving just climate resilience issues. Overall, the research experience for the Major Paper brought challenges and rewards, and I hope my passion for this research is evident throughout the paper.

List of Interviews

I completed interviews with professional planners, scholars, and experts on the subject in the City of Toronto, City of New Orleans, City of Ottawa, and King Township to better inform and frame my research. I completed these interviews between the dates of November 19th, 2020 and August 4th, 2021. Following is a list of the interviews held, some which are referenced throughout my research.

Alan Filipuzzi	Program Manager, Transportation Planning (Scarborough District) City Planning, City of Toronto
Aloma Dreher (B.ES., M.Sc.Pl.)	Planner II, Planning Division - Growth Management Services, King Township
Andrew Au	Senior Transportation Planner, Transportation Planning (Scarborough and North York Districts), City Planning, City of Toronto
Aron Chang	Adjunct Lecturer, Tulane School of Architecture
Birgit Isernhagen (M.Sc., EP)	Program Planning and Evaluation Officer, Health Hazard Response, Health Protection Services, Ottawa Public Health
Elijah (Eli) M. Bawuah	Urban Planner, Urban Strategies Inc. and Co-Founder of Mentorship Initiative for Indigenous & Planners of Colour (MIIPOC)
Gaspare Ritacca, (MCIP, RPP)	Manager of Planning and Development, Planning Division - Growth Management Services, King Township
Jane Weninger	Senior Planner, Strategic Initiatives, Policy and Analysis, City Planning Division - City of Toronto
Jeff Hebert	President, HR&A, New York City
Joshua Welch (MEnvSc)	Climate Change Coordinator, Community Services, Township of King
Kristen Harrison (MCIP, RPP)	Policy Planner, Planning Division - Growth Management Services, King Township
Melissa S. Lee	Director of Planning and Community Engagement, Concordia, New Orleans, LA
Nicole Natalie Hanson (Hons. B.A., MES (Pl.), RPP, MCIP)	Environmental Planner
Sophie Plottel	Project Lead, Environment & Energy Division, City of Toronto

Definitions

In order to provide a clear understanding of the goals I have set out for this research, in this section I define the practical terms outlined throughout the paper: equity, resilience and justice, and discussion on the main pillars of what I believe an excellent climate justice plan includes. Throughout this paper, the claims and goals set out are to a) address the research questions and b) provide solutions for more equitable and resilient climate plans. The definition of terms is helpful to understand these claims and goals. Oxford Languages is the source used for dictionary definitions of each term (Oxford University Press, 2021).

Equity

The first term to be defined is equity. The dictionary defines it as "the quality of being fair and impartial." (Oxford University Press, 2021). Throughout this paper, the term inequitable is used to describe the current circumstances in both Scarborough and New Orleans, which I use to mean the unfair situations the residents and communities face in these areas. Furthermore, I identify equality as fair and equal to all, regardless of class, race, religion, or any other factors. No specific treatment is given to any groups in terms of opportunities or resources (Oxford University Press, 2021). However, to achieve equity, we must recognize how vulnerable and marginalized groups suffer more significant barriers and seek to implement strategies, resources, and opportunities to alleviate these barriers (Oxford University Press, 2021). The paper focuses on the term equity rather than equality for these reasons, and the proposed solutions work towards filling in the gaps.

Resilience

Another critical term throughout this research is resilience. The dictionary defines it as "the capacity to recover quickly from difficulties; toughness." (Oxford University Press, 2021). In terms of climate change, climate resilience is associated with climate adaptation, as "Climate resilience is the ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate" (Center for Climate and Energy Solutions). The main difference between climate adaptation and climate resilience is that adaptation aims to preserve and maintain resources through climate change and disasters (Oxford University Press, 2021). In

contrast, resilience aims to become better and stronger through climate change and disasters (Oxford University Press, 2021). In this paper, I consider both climate mitigation and adaptation strategies through my recommendations but focus on how people and places can be resilient to climate change.

Justice

The dictionary defines justice as "just behaviour or treatment" and the term just as "based on or behaving according to what is morally right and fair." (Oxford University Press, 2021). The term justice is used throughout the paper and serves as the primary theme and goal of achievement through the research completed. Climate justice is an umbrella term that refers to the effects of climate change on various groups and looks at climate injustice, where unequal climate changes affect vulnerable groups (Bulkeley 2013, 916). Climate justice in practice looks beyond climate change as more than an environmental problem, but one of an ethical and political problem, encompassing equality within climate change and framed as a social justice issue (Bulkeley 2013, 917). Climate justice examines the fact that the groups who are the least responsible for climate change are the groups that will experience the most consequences of the effects of climate change (Holland 2017, 393). To continue, it also recognizes the fact that these groups lack the resources to be resilient to these same effects (Holland 2017, 393). The term was created to frame climate change as a rights issue and create awareness for fair and equal treatment and recognition when creating climate change policies and solutions (Bulkeley 2013, 35).

Good Climate Justice Planning

Throughout the paper, I discuss what I believe good climate justice planning includes and how I expect equity and resilience to be implemented in a climate justice plan. A focus on climate change for equity-seeking groups is critical in achieving meaningful solutions for at-risk groups faced by climate change. Good climate justice planning can be achieved through identifying tangible solutions for planners and policymakers to implement through equitable local-level plans (Holden 2012, 310) Good climate justice planning must also present long-term sustainable community development strategies. As my first interest in this topic was fuelled by

witnessing populations in Toronto suffering through increasingly high summer and low winter temperatures and consistent flooding, I noticed City initiatives never seemed to do enough to tackle this growing issue. These plans must focus on people and communities, not just built form and structure. Most importantly, these plans must understand the intersection of geography, race, and income on vulnerable populations in urban areas (Teelucksingh 2007, 647). Good climate justice planning can consist of many methodologies and solutions, but this paper proposes these principles when presenting my recommendations.

The central claims throughout this paper consist of achieving just and resilient climate planning solutions, and the definitions discussed here serve as guiding principles throughout this paper. The research presents recommendations for better just and resilient climate planning, using my opinions and research of scholarly sources. Contrary to a standard research paper format, I include the case study context and literature review within each recommendation, to provide the specific details for each circumstance. I first discuss the history and background of Scarborough, ON and New Orleans, LA before moving into the proposed recommendations.

CHAPTER ONE - History and Background of Scarborough, Ontario.

Introduction - Scarborough as a Case Study

This section discusses the history and background of Scarborough, located in the City of Toronto, Ontario. This paper does not provide a detailed history of suburbs in Canada or Ontario but understands very briefly how post-war suburban development played a role in the city's governance. The various sources discussed throughout help dissect this topic further and are summarized for the sake of the analysis for the paper.

Scarborough has become an example of inequitable climate planning for me because of my personal and academic experience. As an undergraduate student at the University of Toronto Scarborough, I spent a lot of time in the city while I was studying climate change adaptation in my courses. I could see that Scarborough faces challenges that other parts of Toronto do not, due to its large, postwar suburban history, lack of investment, and other issues. My parents also grew up in Scarborough and helped me to understand the changes Scarborough has faced over the past thirty years, or lack of. Due to these experiences and understanding of Scarborough, I am drawn

to understanding these intricacies further. Scarborough was amalgamated into the City of Toronto twenty years ago. Once a large city in its own right, Scarborough became one of five large districts but lost much of its unique identity and autonomy in the process. The communities in Scarborough now struggle to be heard within Toronto, which is so very large in terms of population and geographic size (City of Toronto and Statistics Canada, 2018).

I chose to ground my research on planning in Scarborough due to the unique history and struggles this area of the city faces and the available solutions to help overcome the governance issues it faces today. New Orleans and other cities such as the City of Vancouver are used to work through both the struggles and solutions. Scarborough and New Orleans are large cities with suburban-style neighbourhoods made up of a racialized and diverse group of people (Teelucksingh 2007, 647). These demographics are essential in the analysis and drawing connections. New Orleans' rich and unique history will be discussed, and the connections to Scarborough help create solutions for the diverse population, with varying wealth and education statuses of residents (The Data Center, 2021). Of course, Scarborough and New Orleans have very different planning and settlement histories, but New Orleans is a great learning opportunity for many cities across North America due to their experiences with natural disasters and climate change effects and being a diverse city with a history of injustice issues, including planning issues (The Data Center, 2021). New Orleans allows for a lens that can shed light on Scarborough's impending climate change worries and a diverse and racialized population currently facing injustices (Teelucksingh 2007, 647).

Brief History of Scarborough

The City of Scarborough is today part of the City of Toronto. It is a suburban area within the city and a classic example of post-war suburban development (Scarborough Township, 1966). Scarborough's suburbs were some of the first and most popular suburbs in North America after World War Two and the Great Depression (Scarborough Historical Society, 2019). In 1954, Toronto was building and growing faster than any other city in North America. The years 1900 to 1970 saw a shift of 70% of Canadian rural living to 70% of Canadian suburban and urban living due to the suburban boom (Filion 2001, 142). The post-war development boom was due to economic growth and the rapid increase in population (Filion 2001, 142). The surge of

suburbanization was a key feature of development after World War Two in North America, creating cookie-cutter, single-family homes in large master-planned developments outside the city core to accommodate growth (Filion 2001, 142). Scarborough is a classic example of post-war suburban development, being on the outskirts of the city core and originally housing many nuclear families with a European background (Scarborough Historical Society, 2019). Today, many diverse residents live in Scarborough, and it is home to many new immigrants in Canada (Filion 2001, 142).

Before the development and colonialism of Scarborough and Toronto as a whole, the Indigenous peoples of the Seneca and the Mississaugas resided in the area (Scarborough Historical Society, 2019). European settlement began in Scarborough in the 1790s by Europeans, and farms and villages were part of Scarborough Township, created in 1850 (Scarborough Historical Society, 2019). The township became part of Metropolitan Toronto in 1953 and a borough in 1967 (Scarborough Historical Society, 2019). During this time, most of the development that occurred was suburban built form, creating distinct post-war suburban development (Scarborough Historical Society, 2019). Scarborough became a city in 1983 but was amalgamated as a part of the current City of Toronto in 1998 and other cities that together make up the present-day City of Toronto (Scarborough Historical Society, 2019). Scarborough remains a largely suburban area of Toronto and is primarily automobile-dependent due to its original suburban design (Filion 2001, 142). The Toronto Transit Commission operates the subway, LRT (light rail transit), and bus services throughout Scarborough, allowing for more transit options than most suburban areas within Ontario (Toronto Transit Commission, 2021). However, there remain many gaps (Filion 2001, 142).

Amalgamation

The City of Toronto Amalgamation can be characterized by its current boundaries, formally created in 1998 (City of Toronto, 2018). To best understand this history, Metropolitan Toronto must be described first and foremost. Metro Toronto was created in 1953 to merge resources and services of villages and towns surrounding the boundaries of the previous City of Toronto (City of Toronto, 2018). These new boundaries include New Toronto, Mimico, Weston, Leaside, Long Branch, Swansea, Forest Hill, Etobicoke, York, North York, East York and

Scarborough (City of Toronto, 2018). The goal was to create better public transit and highways, increase services, and create a coordinated growth strategy for the postwar boom (Filion 2001, 142). The Provincial Government then created legislation known as the Metropolitan Toronto Act to tie these municipalities as one in 1953, to be in effect as of 1954 (City of Toronto, 2018). The year 1967 then brought further changes. Metro Toronto decided to create a six municipality set up, made up of East York, Etobicoke, North York, Scarborough, York, and old City of Toronto, dissolving seven of the smallest municipalities into their neighbours (City of Toronto, 2018). Although this created many changes, the most notable change for the purposes of this paper was Scarborough becoming a "borough." Similar to the original proposal of Metro Toronto, the municipalities would function as "lower-tier" municipalities, reporting to the "upper-tier" Metropolitan Toronto but still retaining many powers and decision-making processes (City of Toronto, 2018). Each municipality possesses their own staff to focus on the needs for each specific area (City of Toronto, 2018).

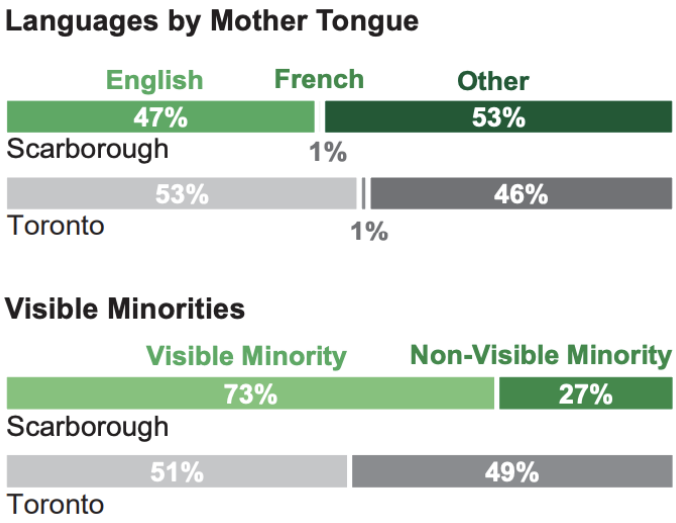
The largest and most significant change was on January 1, 1998, amalgamating Metropolitan Toronto with the six surrounding municipalities as the now single-tier, one municipality operating "City of Toronto" by the Government of Ontario (City of Toronto, 2018). This action created what many called a "megacity," dissolving the six governments into one, created the fifth largest city in North America, now standing at number four (City of Toronto, 2018). This action was put into motion to save money, as proposed by Conservative Premier of Ontario Mike Harris (Chidley and Hawaleshka, 2013). Almost ten years later, the National Post highlighted a story that the savings discussed by Harris were never proven and that staffing increased significantly by almost 4,000 more people in less than ten years (Postmedia News, 2015). Many then responded in defence, stating it allowed Toronto to become a global city in a global marketplace (Chidley and Hawaleshka, 2013).

Amalgamation was an extreme political move and was opposed heavily in Toronto and municipalities across Ontario (Chidley and Hawaleshka, 2013). A municipal referendum in 1997 found that 75% of voters voted against amalgamation (Chidley and Hawaleshka, 2013). Many Mayors came forward to speak against amalgamation, including Mel Lastman (North York), Barbara Hall (Toronto), and former Toronto mayor John Sewell (Chidley and Hawaleshka,

2013). Due to the Provincial government having reigning power over local municipal governments, the referendum was ignored (Chidley and Hawaleshka, 2013). Premier Harris went forward to enact the megacity, with Mel Lastman becoming the first mayor of the "new" City of Toronto (City of Toronto, 2018). Despite this significant shift, it is commonplace to refer to the municipalities as their previous names rather than the entire city as "Toronto." Some offices operate in each municipality, and plans and policies will often pertain to these specific former municipalities of the City of Toronto (City of Toronto, 2018).

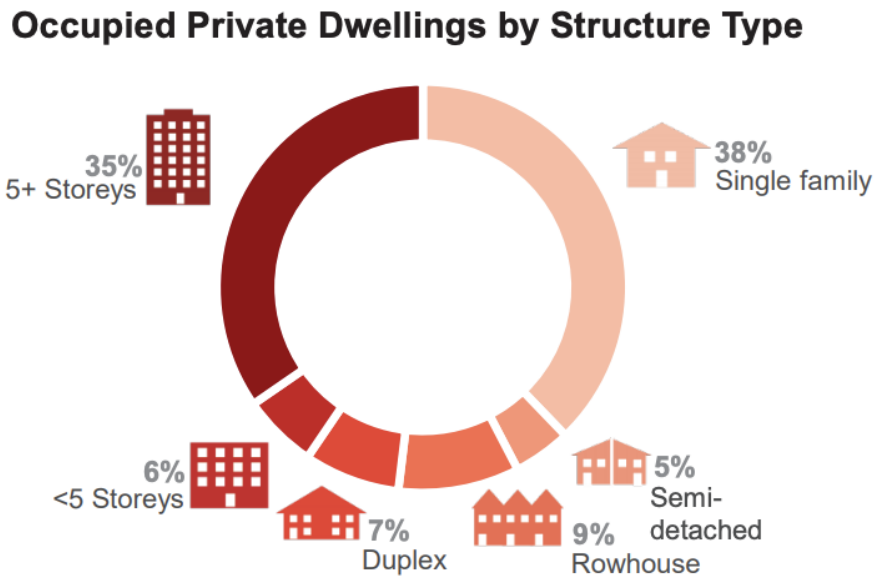
As will be discussed further in the paper, present day Scarborough's makeup resembles a suburban density and housing make up, and large immigrant population (City of Toronto and Statistics Canada, 2018). The population of Scarborough as of the 2016 census is 632,095 and only saw a 1% increase in population from 2011–2016, opposed to the rest of Toronto seeing a 4.5% increase during the same time period (City of Toronto and Statistics Canada, 2018). The population growth from 2006–2016 was 4% for Scarborough, but 9.1% for the rest of Toronto (City of Toronto and Statistics Canada, 2018).

The chart below outlines the demographic makeup of this population, comparative of the rest of Toronto. The chart first shows how Scarborough has a higher population of those without English as their Mother Tongue (City of Toronto and Statistics Canada, 2018). It goes on to show even more of a drastic difference among the percentages of visible minorities in Scarborough, opposed to the rest of Toronto. Scarborough sees over a 20% higher portion of visible minorities in just Scarborough (compared to the rest of Toronto), playing a role in equity and justice processes and reasoning for vulnerability in Scarborough (City of Toronto and Statistics Canada, 2018).



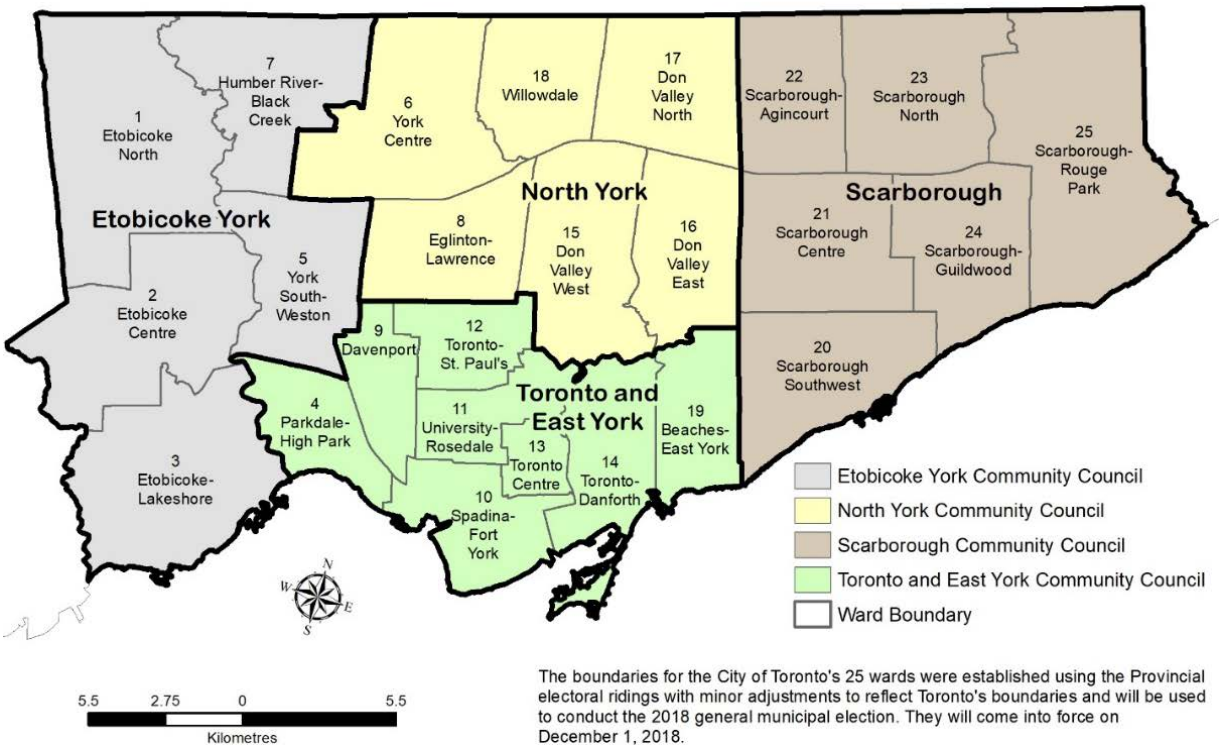
Source: (City of Toronto and Statistics Canada, 2018)
Note: Scarborough sees over a 20% higher portion of visible minorities in just Scarborough (compared to the rest of Toronto), playing a role in equity and justice processes and reasoning for vulnerability in Scarborough.

The chart below provides an understanding of the housing in Scarborough, and how it is very consistent with either single family suburban style homes and built form, and areas with "high-rise" (over 5 storeys) buildings (City of Toronto and Statistics Canada, 2018). In comparison, the rest of Toronto saw an increase between 2006–2011 of 49,530 high-rise apartment dwellings added (City of Toronto and Statistics Canada, 2018). In the same time period, single family semi-detached houses decreased by 6,515 dwellings (City of Toronto and Statistics Canada, 2018). Toronto seems to be shifting more each year to dwellings not consisting of single family homes, whereas Scarborough is 'built up' and is not seeing this shift, and not at a rate similar to the rest of Toronto (City of Toronto and Statistics Canada, 2018).



Source: (City of Toronto and Statistics Canada, 2018)
Note: Housing in Scarborough is very consistent with either single family suburban style homes and areas with "high-rise" (over 5 storeys) buildings.

Scarborough now has designated wards categorized as Scarborough district, including Ward 20: Scarborough Southwest, Ward 21: Scarborough Centre, Ward 22: Scarborough-Agincourt, Ward 23: Scarborough North, Ward 24: Scarborough-Guildwood, and Ward 25: Scarborough-Rouge Park (City of Toronto, 2018). These can be identified on the map below to understand the size and stretch that Scarborough makes up in the City of Toronto.



Source: (City of Toronto, 2018)
Note: City of Toronto Wards - Scarborough's boundaries and six wards are identified.

City Movements Shaping Early Planning

Movements such as Garden City and City Beautiful were surging, and shaped public space. Ebenezer Howard also shaped the public health side of planning in Toronto through Dr. Charles Hodgetts and Thomas Adams (1910-1920), who worked with the Commission of Conservation, working towards a "city efficient", a model that persists today across Canada. The Great Depression created a stop to many planning activities in place (c. 1932).

Pre -WWII

Metropolitan Planning Board & Two-Tier System

This period marked the creation of the Metropolitan Planning Board, as well as a two-tier planning system. A huge surge in suburban development occurred, heavily shaped by the Board. There was a call for increase of density, mainly rental apartments in both the downtown core and the inner suburbs.

1950's – 1960's

Sprawl, Push from Suburbia and New Legislation

Suburban sprawl, traffic congestion and walkability concerns surged in the late 1990s. "Smart Growth" became a more discussed concept in order to relieve these issues with higher densities beyond the core and increase of public transit accessibility. The Places to Grow Act was enacted in 2005, which followed with "Growth Plan for the Greater Golden Horseshoe," in June 2006, marking a new Provincial based regional plan, not having seen one since the 1970's.

1990's – 2000's

Post - WWII

Regional Planning in the GGH Core

Regional Planning first appeared in the Toronto metropolitan region with the creation of the 1943 Master Plan, the city's first regional plan, created by a group of consultants working with the Toronto City Planning Board. The Province of Ontario enacted a new Planning Act (1946), which allowed for municipalities to create official plans for their jurisdictions, which were legally binding. Many changes in planning began during this time.

Loss of Planning?

A large portion of Metro Toronto was built up, and the development shifted out of traditional planning boundaries. The Province of Ontario had taken on a larger role in regional planning. 1968 marked the merging of municipalities in certain areas of the GGH into larger "regional governments". This created lower and upper tiers. York Region was the first merge in the Toronto region, created in 1971, followed by Halton, Durham, and Peel Regions in 1974.

1970's – 1980's

Climate (and other!) Emergencies

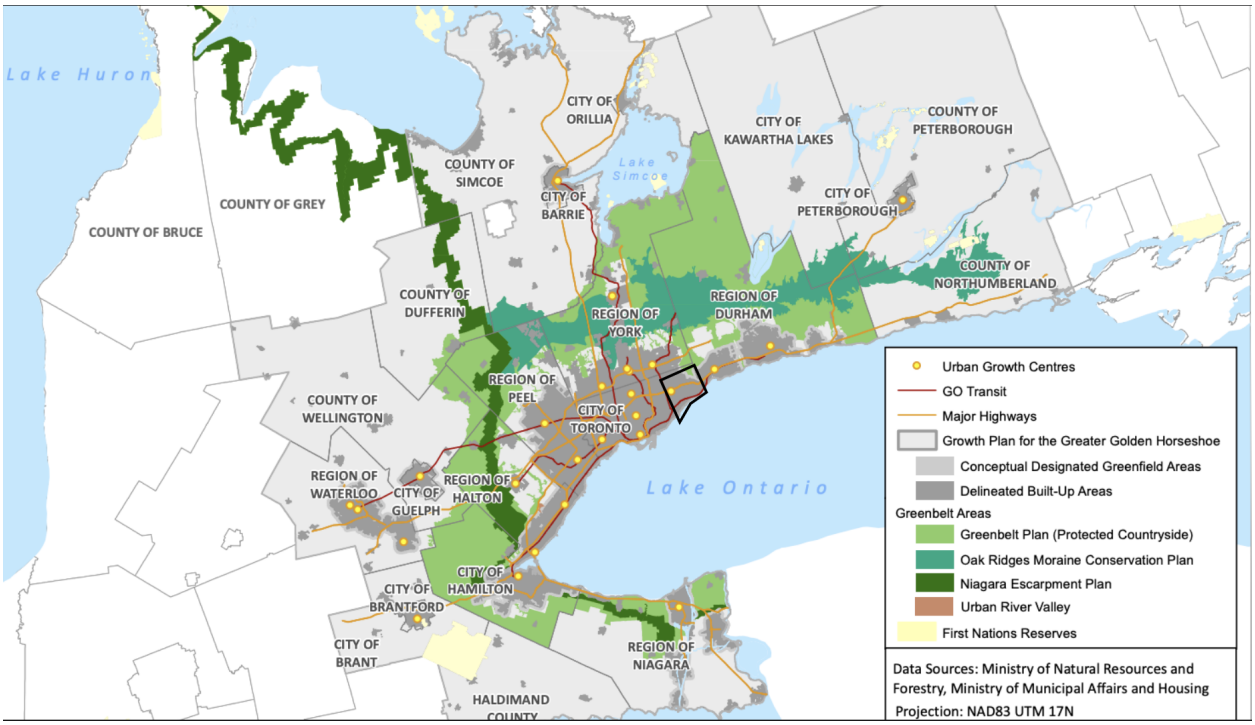
504 jurisdictions across Canada have declared climate emergencies, most occurring in 2019 (City of Toronto's occurred on Oct 3rd, 2019), pushing for a new lens of planning. Climate change has become one of the largest dilemmas for planners in the GGH. 2020 has brought the emergency of public health pandemic COVID-19, pushing planners in a new direction of emergency planning.

PRESENT DAY

Source: (Danielle Tivoli, 2021)

Toronto and the Greater Golden Horseshoe

The City of Toronto falls within the secondary region known as the Greater Golden Horseshoe (GGH) in Ontario, made up of many municipalities that fall within the Greater Toronto Area (GTA) (Province of Ontario). The core municipalities include Toronto, York Region, Durham Region, Peel Region, Niagara Region, Halton Region, and Hamilton. Surrounding extended areas include the County of Brant, Brantford, Dufferin County, Haldimand County, Kawartha Lakes, Northumberland County, Peterborough (county and city), Simcoe County, Barrie, Orillia, Waterloo Region, Wellington County, and Guelph (Province of Ontario). The population of the entirety of the Greater Golden Horseshoe (as of 2016) was over 9,000,000 (Province of Ontario). The population is set to reach 13.5 million people by 2041 (Province of Ontario). For context, the City of Toronto's population in 2017 was 2,930,000 (City of Toronto and Statistics Canada, 2018). Scarborough makes up 632,095 of Toronto's population (City of Toronto and Statistics Canada, 2018). The Golden Horseshoe is a significant area due to its extremely high density. This area makes up 55% of Ontario's population and 21% of Canada's population in an area of 33,500 km2 (13,000 sq mi) (Province of Ontario). Chapter Five discusses my comparative analysis of plans and policies for climate change for municipalities across the Greater Golden Horseshoe. This section provides the regional context for my research and recommendations. The City of Toronto within the larger urban region is characterized by vast differences across a relatively small geographic area, and where these differences require a more community-based planning focus. The map below of the GGH, including environmental features and plans that fall within the area.



Source: (Province of Ontario)
Note: Scarborough is outlined in the black box on the map of the Greater Golden Horseshoe.

Land Use and Climate Impacts

Environmentally, Scarborough has a large amount of green space in Toronto and has specific environmental areas, including both the Scarborough Bluffs and Rouge Park (City of Toronto, 2021). Both Highland Creek and Rouge River make up Scarborough's watersheds, connecting to Lake Ontario (TRCA, 2015). Highland Creek is heavily urbanized, with many portions going through urban development, but some small areas are left undeveloped due to the intensity of the ravines, and conservation of the lands (Toronto and Region Conservation Authority, 2015). The Rouge River is relatively less developed, making up a national urban park with many natural areas (Toronto and Region Conservation Authority, 2015). The Scarborough Bluffs is a portion of cliffed escarpment found along the border of Lake Ontario within Scarborough, over 14 kilometres long and 60 metres high (Eyles 2002, 339). The Bluffs are an essential environmental feature because they are part of the Iroquois Shoreline, which was once part of Glacial Lake Iroquois, a prehistoric lake. A significant issue that affects the area and the homes along the cliff line is erosion (Eyles 2002, 339), which is expected to advance at a greater rate due to climate change. Despite efforts to protect and adapt to this erosion, many properties have had to be removed over time (Eyles 2002, 339). Various measures such as infilling and

breakwaters help mitigate these effects (Eyles 2002, 339). Despite being so close to the urban core and being a suburban area, Scarborough has a variety of environmental areas that make up the division (Toronto and Region Conservation Authority, 2015). Scarborough provides a good case study for learning how to adapt to climate change effects.

Scarborough is set to see an increase in climate changes (Eyles 2002, 339). Although there are no current studies that outline the direct impacts Scarborough will see, excluding the discussed issues with the Bluffs, the City of Toronto will experience drastic climate impacts (Beattie 2020). In a 2020 article from Huffington Post Canada, they state that "Out of 85 major cities around the world, Toronto is projected to experience the fourth largest climate shift by 2050 if nothing is done to curb global carbon emissions, according to a new study by Nestpick, based in Berlin." (Beattie 2020). Extreme heat will be one of the most prominent changes over the next 30 years, which in turn will include more rain in winters, providing a new set of problems (Beattie 2020). Although we know that the entirety of the city will be affected by these drastic changes, it will be useful moving forward to have studies that are specific to each area in Toronto, therefore aiding in mitigating and adapting to these climate impacts. This is explored more in Recommendation Three of the paper. Although the predictions for Toronto (and in turn, Scarborough) do not include natural disasters, heat and rain can provide a difficult set of problems and can lead to natural disasters long-term (Beattie 2020). Scarborough is an important climate change case study moving forward.

Planning Background - Planning in Scarborough

Scarborough's land use and urban structure are planned through the City of Toronto's Official Plan, including the City's overarching climate efforts, the most recent being *TransformTO* and the *Toronto Resilience Strategy* (City of Toronto, 2019). Toronto's climate plan proposes current actions to prevent climate change but focuses less on what to do once these climate changes occur (City of Toronto, 2018). Due to climate changes set to have significant, visible effects on the city itself, *TransformTO* is more of a general climate plan than a focused mitigation or adaptation plan (City of Toronto, 2018). Although some goals are set for more extensive time frames, such as 2050, the *TransformTO* policy lacks specificity on how to break down the goals into smaller objectives and actions (City of Toronto, 2018). The report does

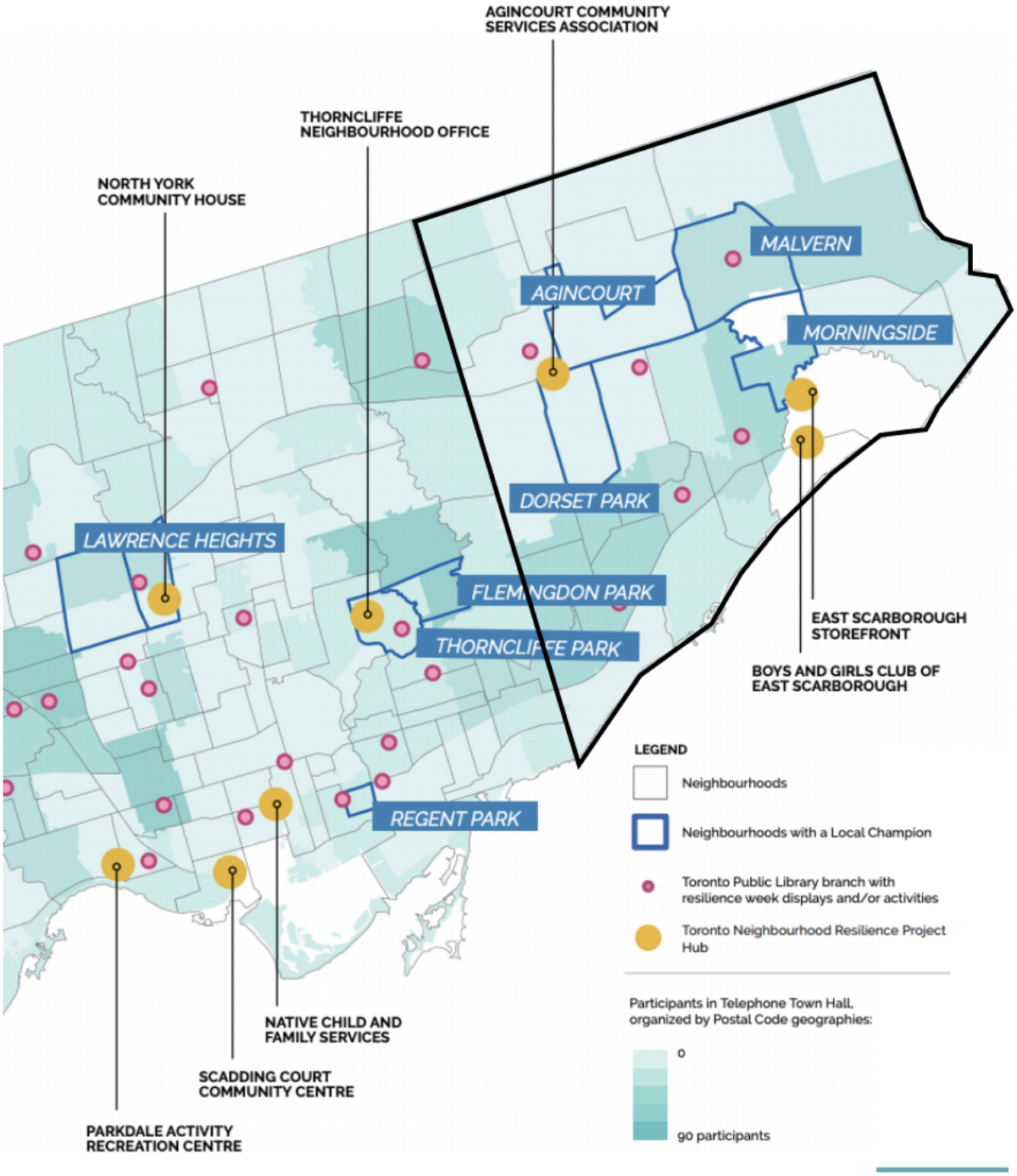
provide budget estimates, and the report itself functions less like a climate adaptation plan but more as climate change goals (City of Toronto, 2018). Despite being a climate plan for the city, individuals are considered in more than one aspect of these goals and plans, showing signs of equity, inclusion, and justice. These goals are considered throughout the research (City of Toronto, 2018). Goals for Scarborough are not addressed separately, but this is somewhat addressed in the *Toronto Resilience Strategy* (City of Toronto, 2019). Despite this, no specific Scarborough climate justice plan exists. The extent to which this plan alludes to climate justice will be significant in approaching climate justice from the research done for New Orleans.

A major downfall in the plan is the lack of separation and identification of adaptation vs. mitigation. The City of Toronto's climate change plan pledges an overall goal of reducing greenhouse gas emissions (GHG) levels 80% lower from 1990 levels in the year 2050 (City of Toronto, 2018). This goal was pledged in their climate adaptation and mitigation plan *TransformTO*, published in April 2017 (City of Toronto, 2018). The plan encompasses short and long-term goals but focuses on three larger goals they list as "campaigns" (City of Toronto, 2018). Adaptation is found in the plan significantly through the short-term goals found in "Attachment A: TransformTO Short-term Strategies." However, these goals are not categorized as "adaptation" but resemble typical adaptation goals. Despite this recognition, the City of Toronto lacks specific goals to plan and protect against very imminent climate effects. Toronto should consider and invest in tangible ways to adapt and attempt to be resilient to large and small climate changes. As discussed in Recommendation Three, having a robust and unified climate plan focused on mitigation, adaptation, and justice would allow for a larger framework to work within and create a more straightforward strategy (Schrock et al., 2015, 283). There is a significant missing piece of adaptation for the city, making it challenging to identify and explore in specific detail.

Although the City of Toronto has various strategies for community outreach, including Planners in Public Spaces, Youth Engagement Strategy, Growing Conversations, and others, it is crucial to continue to develop these strategies, as will be discussed in my recommendations (City of Toronto, 2019). Evidence in my recommendations will show how advanced community engagement, beyond consultation but to assist in influencing plans, is beneficial for climate

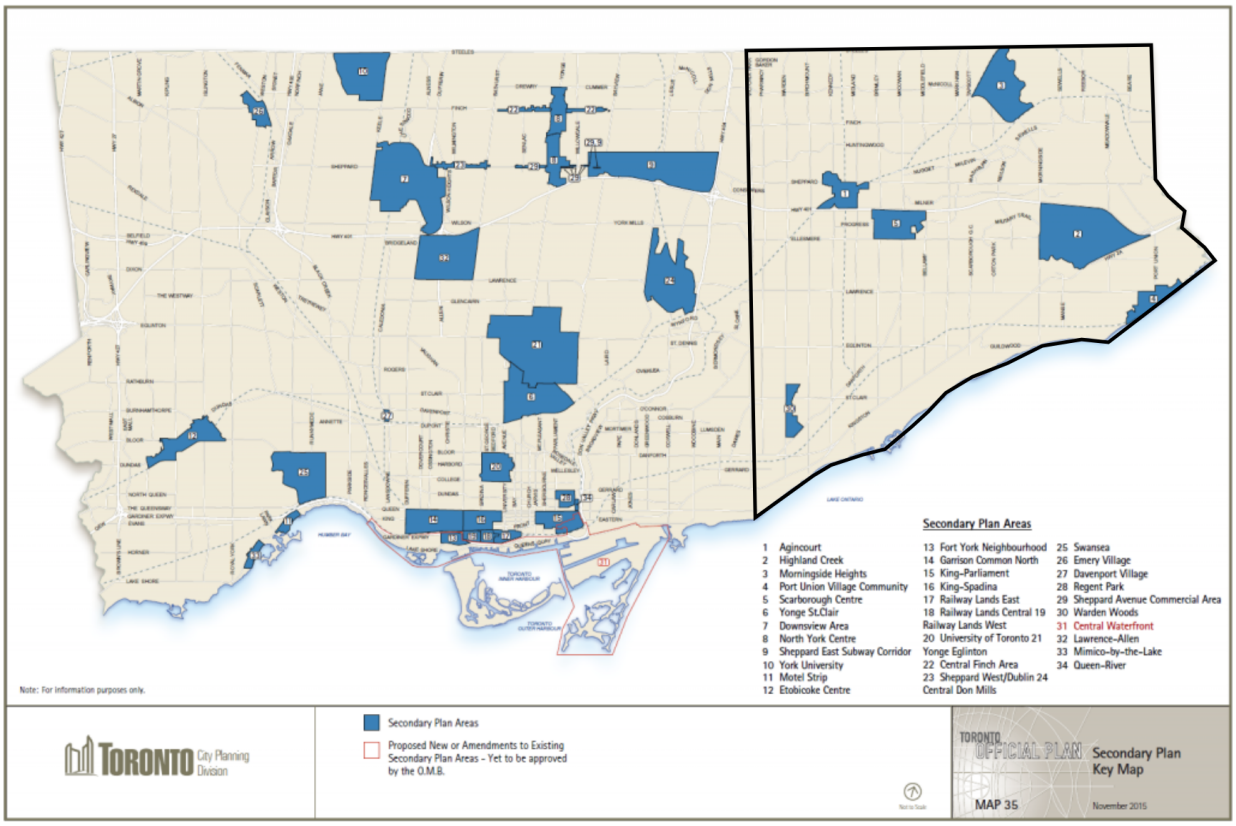
justice in areas such as Scarborough (Chu et al. 2016, 382). Strategies as such offer solutions for participation in specific areas and communities across the City of Toronto, a key highlight being Scarborough. With extensive studies and secondary plans in action in Scarborough, it would be helpful to see how Growing Conversations and other community outreach tools the city has curated can be activated to create a just plan (City of Toronto, 2019). Some secondary plans in Scarborough include the Golden Mile Secondary Plan, Scarborough Centre on the Move, and Our Scarborough Centre (City of Toronto, 2019).

A large milestone plan is the *Toronto Resilience Strategy* by the City of Toronto from 2019. The initial strategy outlines actions that must be completed in order to achieve climate just resilience across the City of Toronto (City of Toronto, 2019). Most importantly, it outlines areas that need to be considered as "Toronto Neighbourhood Resilience Project Hubs", which includes three neighbourhood hubs in Scarborough (City of Toronto, 2019). The strategy was created to address the problems that exist, specifically climate change and equity in the City of Toronto (City of Toronto, 2019). The strategy also wishes to intersect goals of equity-seeking groups with climate vulnerable populations to achieve better climate justice (City of Toronto, 2019). The strategy contains a number of high-level goals that need to be implemented, some of which are in progress, such as *TransformTO* (City of Toronto, 2019). The strategy is also focused on tackling resilience challenges and seeking to commission studies and implementation through various time periods (City of Toronto, 2019). The goals and sentiment of the strategy are extremely important for Scarborough and the rest of Toronto. I look forward to seeing further implementation of these solutions outlined throughout the strategy, and hoping they encompass values of my recommendations. Unfortunately, the large number of reports, plans, and studies proposed creates worry of implementation issues (Schrock et al. 2015, 285). As I will discuss, implementation of local climate justice plans can be effective, but only if it targets goals for local communities and is able to achieve beyond high-level goals (Schrock et al. 2015, 285).



Source: Toronto Resilience Strategy Engagement and Neighbourhood Resilience Map (City of Toronto, 2019)
Note: Scarborough is the outlined black box on the map for the Toronto Resilience Strategy.

Grassroots communities and social justice have always played a prominent role in the City of Toronto, and a few focus upon Scarborough for various solutions. The organizations support in filling in the gaps left by city planning (Irazabal and Neville 2007, 131). As I discuss further in my Recommendation One, there are multiple ways in which climate justice is worked towards in the City of Toronto, especially with engagement with external actors to strengthen their goals. Some influential organizations are discussed further in this paper. Unfortunately, the plans and these organizations are city-wide, suggesting a need for more area-focused (i.e. Scarborough) to achieve specific goals and needs. Fortunately, more Scarborough-focused consultation is discussed in Toronto's First *Resilience Strategy* (2019), as outlined. Hopefully this focus on Local Champions within Scarborough can address the gaps felt in Scarborough currently. Despite community consultation with local organizations, this shift is important in addressing Scarborough needs, rather than 'downtown' or city-wide issues (City of Toronto, 2019).



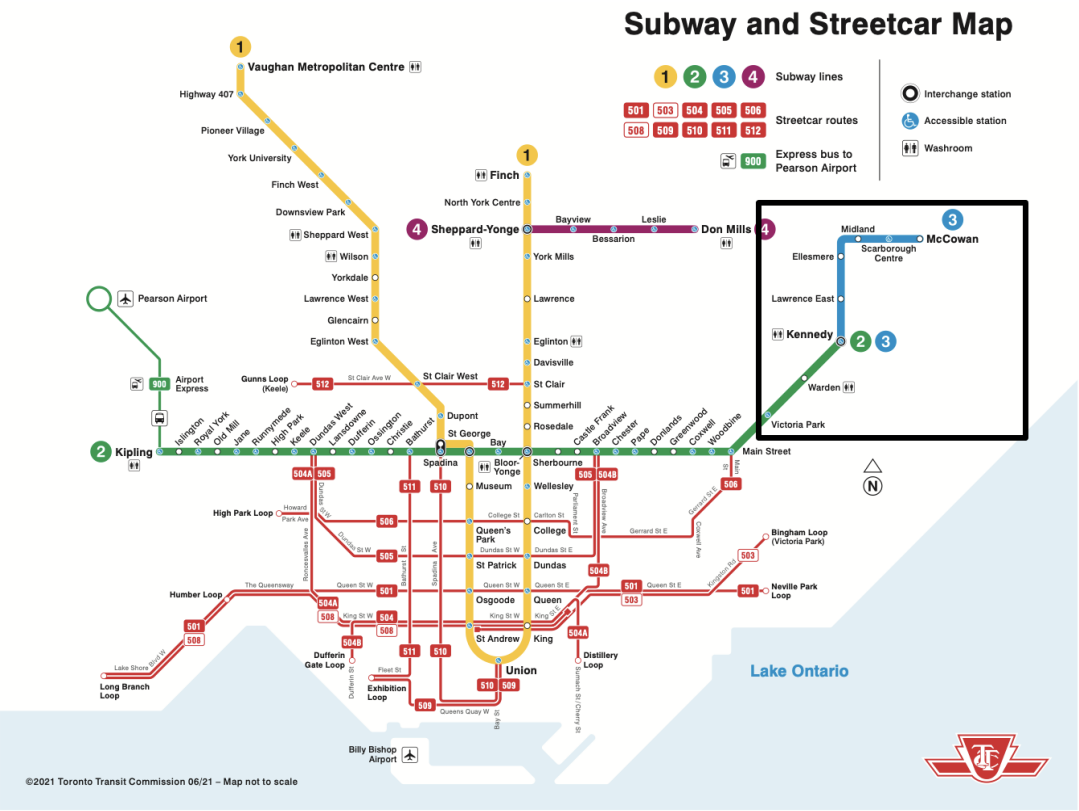
Source: (City of Toronto, 2015)
Note: Scarborough is outlined in the black box on the map on the City of Toronto Secondary Plan Key Map. Six Secondary Plans fall within Scarborough.

Injustices in Scarborough

This section provides the background and evidence of the challenges, problems and injustices in Scarborough. As discussed, although community consultation is a required part of the planning process, in spite of Provincial Law through the *Planning Act*, there remain many gaps in the public participation process (Government of Ontario, 1990). Generally, civic engagement is much lower in lower-income areas, especially in areas that are made up of a higher number of immigrants and those who speak English as a second language or do not speak English at all (McBride et al. 2006, 155). In a study completed in the Mid-Scarborough area in 2007, sociologists and planners categorized Scarborough as a suburban area (Teelucksingh 2007, 652). They qualified it as a marginalized Canadian inner city, using census demographics as indicators (Teelucksingh 2007, 652). The study also outlined that when comparing Scarborough against the Toronto Census Metropolitan Area, Scarborough had a significantly higher number of immigrants, visible minorities, government transfer payments, incidents of low income, and rental occupancy (Teelucksingh 2007, 652). The study states that Scarborough categorizes as an 'in need' community of rehabilitation and socio-economic improvement, in both the 1999 Scarborough Official Plan and Social Indicators and Priority Area study of 1999 (Teelucksingh 2007, 652). United Way Toronto also stated in their Poverty by Postal Code Study (1981-2001) that Scarborough was one of the inner suburbs that saw higher poverty growing in their neighbourhoods throughout that time, and at a faster rate (United Way, 2004).

Scarborough suffers from inadequate housing, transit, and overall lack of resources and infrastructure, making residents highly susceptible to climate injustices, and already are battling social injustices (Ollevier and Tsang 2007, 15). A report titled "Environmental Justice in Toronto Report" prepared for the City of Toronto (written by Melissa Ollevier and Erica Tsang, 2007) outlined examples of these injustices through housing, stating how more impoverished areas of Scarborough had extreme levels of poorly maintained government-subsidized housing, including issues of "cockroach and rat infestation, bad smells, broken windows and poor ventilation." (Ollevier and Tsang 2007, 15). In a place such as Scarborough, with characteristics such as lower income, higher levels of immigrants, and other factors, these problems of social housing become an issue of equity and justice. The authors also outline the idea that this then manifests into an

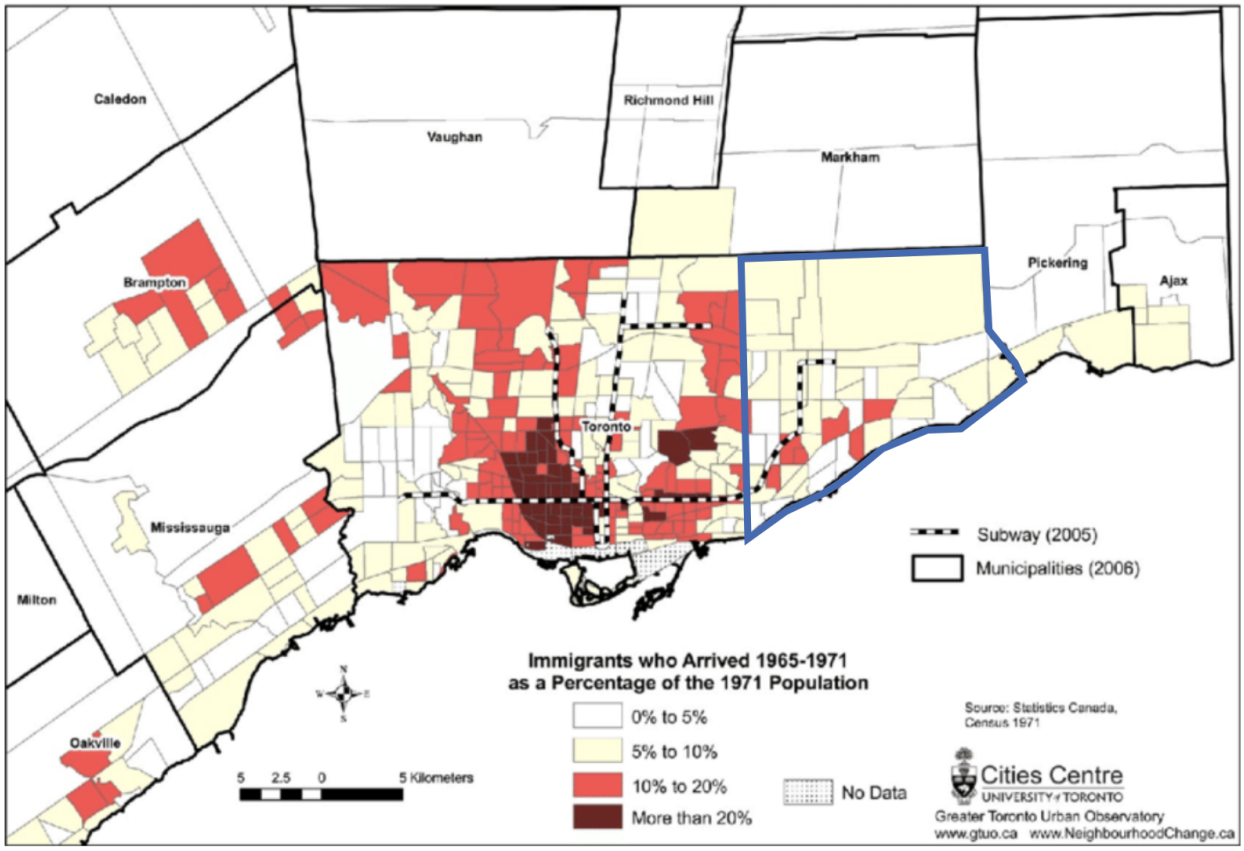
environmental risk and justice issue (Ollevier and Tsang 2007, 15). This is unfortunately not the only way in which Scarborough faces injustices and puts them at a higher risk of environmental risk and racism. Transit is also a vital issue in the area, creating a lack of accessibility and isolation from the rest of Toronto. In "Choices for Scarborough: Transit, Walking, and Intensification in Toronto's Inner Suburbs" (Sorensen and Hess, 2015), the authors provide a proposal of how to develop transit throughout Scarborough, first underlining the point that "Scarborough is one part of Toronto most poorly served by rapid transit," (Sorensen and Hess 2015, 5). The map below outlines the few subway stops provided to the Scarborough area, Victoria Park, Warden, Kennedy, Lawrence East, Ellesmere, Midland, Scarborough Centre, and McCowan (Toronto Transit Commission, 2021). The map provides a comparison of Scarborough to the rest of the City of Toronto. Bus routes and automobiles make up a large portion of accessibility for the rest of Scarborough (Toronto Transit Commission, 2021).



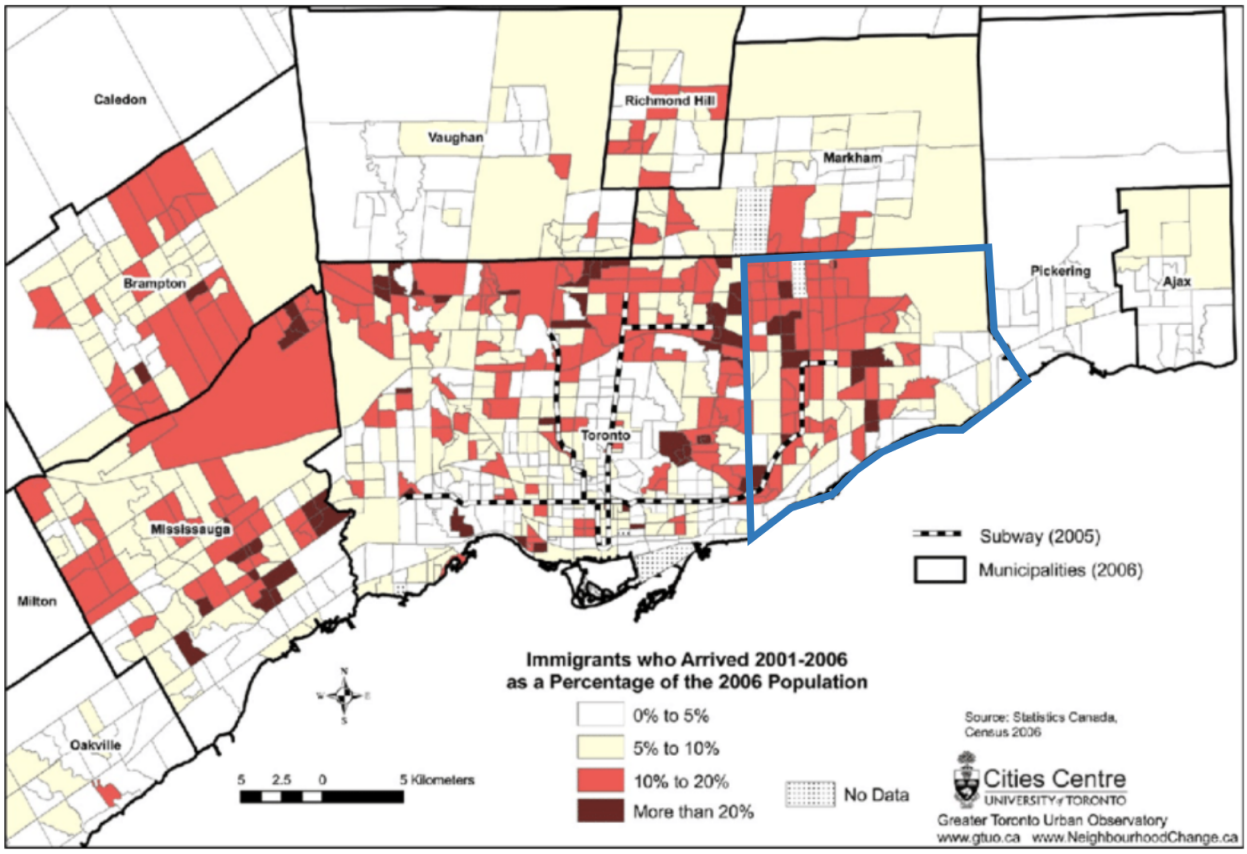
Source: Toronto Transit Commission, 2021

Note: Scarborough stations are outlined in the black box on the map, showing Scarborough TTC Subway stations.

For some more context to the information that is provided further in the paper, such as discussing the decline and lack of infrastructure across Scarborough, the maps below outline the changes over time of immigrant arrival percentages across Toronto (Harris 2015, 33-40). Between 1965-1971, there were only very few areas that saw immigrant arrival, and only between 10% - 20% (Harris 2015, 33-40). Between 2001-2006, Scarborough saw the most significant amounts of immigrant arrivals, and some areas of Scarborough seeing over 20% (Harris 2015, 33-40). Chapter Four (Recommendation Two: Inclusive Social Infrastructure) of this paper provides an analysis under Scarborough Context to the income changes on a map of the City of Toronto over time, mapping these changes. The maps provided in this chapter outline how income during these same two time periods drastically shifted from Middle Income to Low or Very Low Income. This period also saw a significant decline in infrastructure, resources, and investment (Ollevier and Tsang 2007, 7). Reports have shown poverty increasing extremely fast and concentrated in areas specifically in Scarborough, directly relating to highly immigrant neighbourhoods, and this rate and trend continue to grow every year (Ollevier and Tsang 2007, 7). This growth of poverty in marginalized communities is becoming a pattern within Scarborough. There are extreme consequences to these forms of inequity and injustice, one of the largest being environmental racism and higher levels of climate change effects (Ollevier and Tsang 2007, 7). As proven in Chapter Four (Recommendation Two: Inclusive Social Infrastructure), infrastructure can be a crucial way to alleviate this growth of poverty in marginalized communities and heal inequities.



Source: (Harris 2015, 33).
Note: Scarborough is outlined in the blue box on the map. The map shows the low levels (5%-10%) of immigrants arriving between 1965-1971.



Source: (Harris 2015, 40).
Note: Scarborough is outlined in the blue box on the map. The map shows the high levels (10% +) of immigrants arriving between 2001-2006.

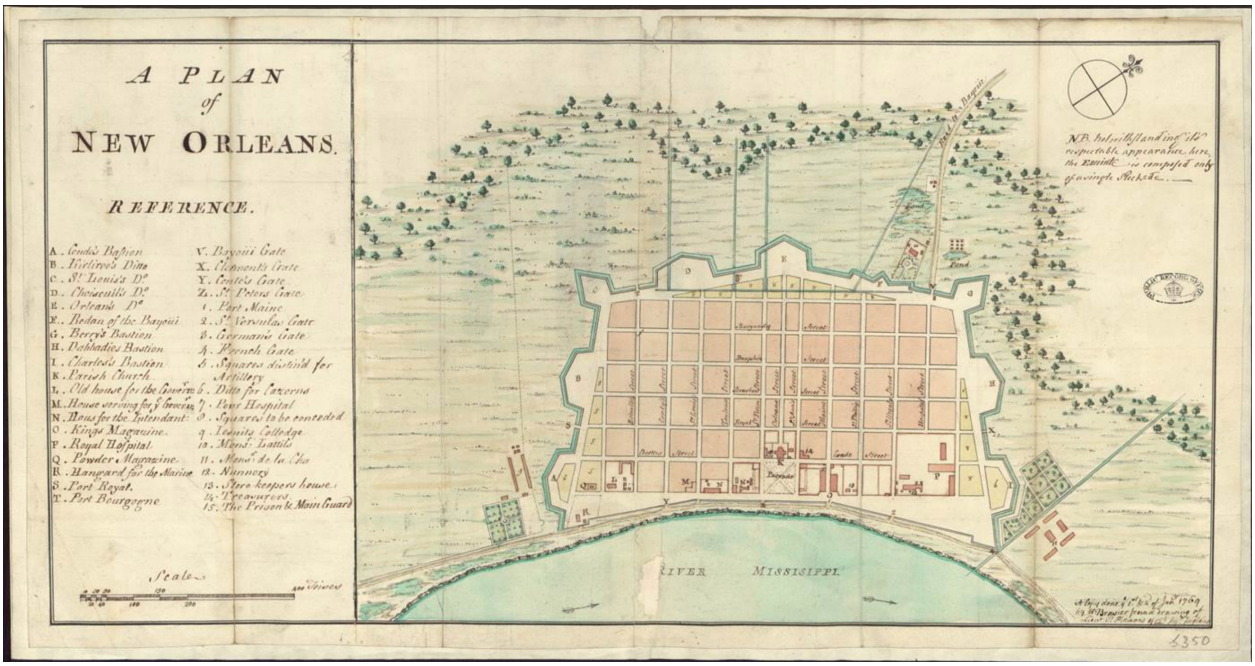
As discussed, the extreme inequities and injustices Scarborough faces put the area at a much higher risk of climate change effects (Bulkeley 2013, 916). As discussed, this occurs due to environmental racism, which examines the fact that the groups who are the least responsible for climate change are the groups that will experience the most consequences of the effects of climate change (Holland 2017, 393). To continue, it also recognizes the fact that these groups lack the resources to be resilient to these same effects (Holland 2017, 393). City of Toronto plans attempt to predict future climate change effects, such as flooding, more common natural disasters such as tornadoes, heat, and others (City of Toronto, 2019). Another feature that creates justice and equity issues for Scarborough is its isolation and now growing crime rates. The book "In-Between Infrastructure: Urban Connectivity in an Age of Vulnerability" (2011) provides a chapter titled "The Representational Challenge of the In-Between" by Robert S. Fiedler, which describes this isolation and growing crime, as well as the stigma behind it. It is well known the

negative nicknames Scarborough faces and has been facing before the changes in demographics and income (Fiedler 2011, 72). Isolation and separation from the rest of the City of Toronto have always been an issue in Scarborough. This is primarily due to the lack of connectivity through transit, which has not grown at nearly a fast enough rate over the years (Fiedler 2011, 72). Due to this, the nickname 'Scarberia' was created, referencing the vast distance between Scarborough and downtown Toronto as though similar to Siberia and Moscow (Fiedler 2011, 72). As discussed in this section, there have been considerable changes to Scarborough since the 1970s; this includes a change from 'classic' suburbia patterns to built form and social and economic changes (Fiedler 2011, 73). Unfortunately, a new nickname has been created, with a highly racialized tone and meaning, 'Scarlem,' referencing Harlem in New York City, which sees higher poverty and crime rates (Fiedler 2011, 73). With annotations to "racialized poverty, crime, and violence," the stigma and attitude towards Scarborough have shifted significantly over the last 50 years (Fiedler 2011, 73). With this, injustice and inequity continue to grow in Scarborough, providing an excellent opportunity to learn from other cities with these issues, such as New Orleans, and provide solutions to help solve the problems at hand.

Conclusion

The questions that led the analysis for this section were as follows: What has the City of Toronto said they are going to do and what is happening? What actions have been and not have been taken into account during the planning process? What has been missing in the first place in these plans and processes? The studies and reports discussed for Scarborough have aimed to incorporate higher levels of community engagement and input. However, they could utilize grassroots organizations to increase the community's participation and invest time and resources in allowing Scarborough to have higher public engagement rates. This background of Scarborough helps understand the need for the proposed recommendations for implementation.

CHAPTER TWO - History and Background of New Orleans, Louisiana.



Source: Colonial America (2019)
Note: 1769 Historical Plan of New Orleans.

Introduction

This section provides both the history of New Orleans, and the impacts of Hurricane Katrina. This section focuses on the New Orleans experience as an example of climate injustice and its impacts on the city and its people. These experiences are summarized to provide a transparent background for the proposed recommendations provided later in the paper.

Brief History of New Orleans

New Orleans is a case study of a colonial city with significant historical connections to racist planning practices (Campanella 2008, 120). Throughout the city's history, similarly to other cities in surrounding southern states, racism has been a critical defining feature (Campanella 2008, 114). Colonialism and post-colonial racism still prevail from the historical planning practices in the city, making New Orleans a complex case study example (Campanella 2008, 118). My research explores how New Orleans is shaped by historical colonial practices and environmental racism and the implications of injustice that prevail today, causing severe implications for minority and low socio-economic residents in the City (Bulkeley et al. 2013, 916). Combined with the events of Hurricane Katrina in 2005, which is a poignant example of

the devastation Scarborough may expect (and must plan for) from climate change, New Orleans provides a detailed look into the profound implications of colonialism and racist planning, as well as these practices contributing to environmental racism (Campanella 2008, 114).

New Orleans has been planned from colonial times to protect the higher class, wealthy and white population on plantations from natural disasters, such as hurricanes and associated flooding that are common in this part of the United States (Clark 2007, 165). In colonial times, beginning in 1718, plantations were often built in specific areas, on a steeper incline to provide protection (Clark 2007, 165). Minority groups that make up a large part of the city have homes in high-risk areas and must bear the burden of natural disasters (Clark 2007, 165). These connections are discussed in context to the more recent Hurricane Katrina, which devastated many of the minority populations in the city. New Orleans has been written about extensively as an example of climate injustice. Studies of New Orleans have helped define environmental racism and environmental justice, climate justice, and injustice (Bulkeley 2013, 917). These terms are key themes in my analysis of New Orleans. New Orleans is one of the most prominent environmental racism and injustice cases across the international level (Clark 2007, 165).

As discussed, New Orleans is a city in North America with some of the most profound colonialist planning practices. Unfortunately, many implications of these practices continue to affect the residents today, also affecting the built form of the city itself (Campanella 2008, 20). The city's history can be traced back far before the early 1700s, which is where most historical timelines for New Orleans begin (Campanella 2008, 20). Before colonialism and before white settlers came to the city, many Indigenous tribes were the residents and keepers of the land now known as Louisiana, including Mississippian and Woodland tribes (Campanella 2008, 19). Early European expeditions visited the area throughout the mid-1500s and late 1600s, up until 1718 (Campanella 2008, 20). 2018 marked the 300th anniversary of the creation of New Orleans, also known as Nouvelle-Orléans. During the French ruling of Jean-Baptiste Le Moyne, Sieur de Bienville, New Orleans then became the capital of the state years later in 1722 (Campanella 2008, 22). As it is well known, the city is quite vulnerable to hurricanes, having experienced a hurricane in 1722, one of the first recorded in modern history (Campanella 2008, 22). These hurricane events sparked an increase of urban planning practices, creating the French Quarter

(Campanella 2008, 22). The grid pattern and form of New Orleans, which prevails today in the city, is very common in colonial cities from this era and cannot be directly linked to disaster planning (Campanella 2008, 22). In spite of this, ‘new’ planning after these hurricane events took place to protect areas from floodplains, influencing the city’s built form which is evident even today (Clark 2007, 165). The injustices of this are discussed further in the paper.

New Orleans has experienced prominent cultural influences through the various colonialist rules (Campanella 2008, 114). The first rule to occur in New Orleans was of the French colonization, and although this rule and colonization changed throughout the history of New Orleans, was held for a large number of years, as well as impacting the development and planning of the city of New Orleans and the state of Louisiana (Campanella 2008, 114). In between the French rules of New Orleans, Spain colonized and controlled the land and people for some time, attributing to the diverse cultural influences and people throughout the city that persists to this day in New Orleans (Campanella 2008, 118). The historical timeline: the French held power from 1718–1763 and again from 1802-1803 (Campanella 2008, 23). The Spanish held power from 1763–1802, before Louisiana became a part of the United States of America, due to the influential Louisiana Purchase, from 1803–1861 (Campanella 2008, 38). Louisiana became an independent state in 1861, a precursor to the Confederation with the United States but then ceded with the other states of the American South and became a Confederate state from 1861–1862 (Campanella 2008, 38). Since 1862, New Orleans has been a part of the United States of America once more (Campanella 2008, 40). This timeline aids in understanding the changes in influence, culture, and rule that has shaped and formed modern-day New Orleans, including the planning practices in place (Campanella 2008, 40).

This extensive history and colonization have played a significant role in the urban planning history of New Orleans. As discussed, the previous natural disasters have shaped the city's planning (Campanella 2006, 338). The iconic French Quarter and grid style of planning were all attributed to the previous hurricane of 1722 (Clark 2007, 167). In the article "Elite Designs and Popular Uprisings: Building and Rebuilding New Orleans, 1721, 1788, 2005", Emily Clark (2007) analyzes how urban planning was often shaped by the disasters that devastated parts of the city. These disasters include the 1722 hurricane, the fires of 1788 and the

most recent 2005 Hurricane Katrina devastation (Clark 2007, 161). These disasters revealed environmental racism and injustice, but the rebuilding and planning practices that followed demonstrated colonialist planning practices and racist injustices towards the minority groups in New Orleans (Clark 2007, 163). As will be discussed further, Hurricane Katrina revealed environmental racism and injustice, as made in scholarly analysis post-disaster. Besides 'bad planning' with a lack of plans in place, New Orleans has been heavily criticized for inadequate infrastructure, especially in neighbourhoods made up of racial minorities and lower-income people, creating significant disadvantages (Nixon 2011, 55). The city of New Orleans has been planned and shaped throughout its entire history of colonial rule by the French and Spanish rule. American 'rule' through slavery and segregation then reinforced racism in urban design and built form (Clark 2007, 165). This is evident as plantation homes and other homes belonging to those of higher class and wealthy white residents would be built in segregated areas of the city, on hills away from floodplains and therefore shielded from natural disasters (Clark 2007, 165). Those of lower socio-economic status lived in areas vulnerable to flooding (Clark 2007, 165). The current population and the ethnic mix in New Orleans demonstrates this today, as will be discussed (The Data Center, 2021). This urban structure has been reinforced throughout the city's history, and unfortunately, the city has experienced forms of racism, colonialism, and segregation for all of its history (Clark 2007, 169). New Orleans, as well as the state of Louisiana as a whole, has been victim to some of the most prolonged periods of segregation, slavery, and colonialism in the United States (Clark 2007, 169). As a result, racism has persisted, being reinforced by the form and planning of the city (Clark 2007,176).

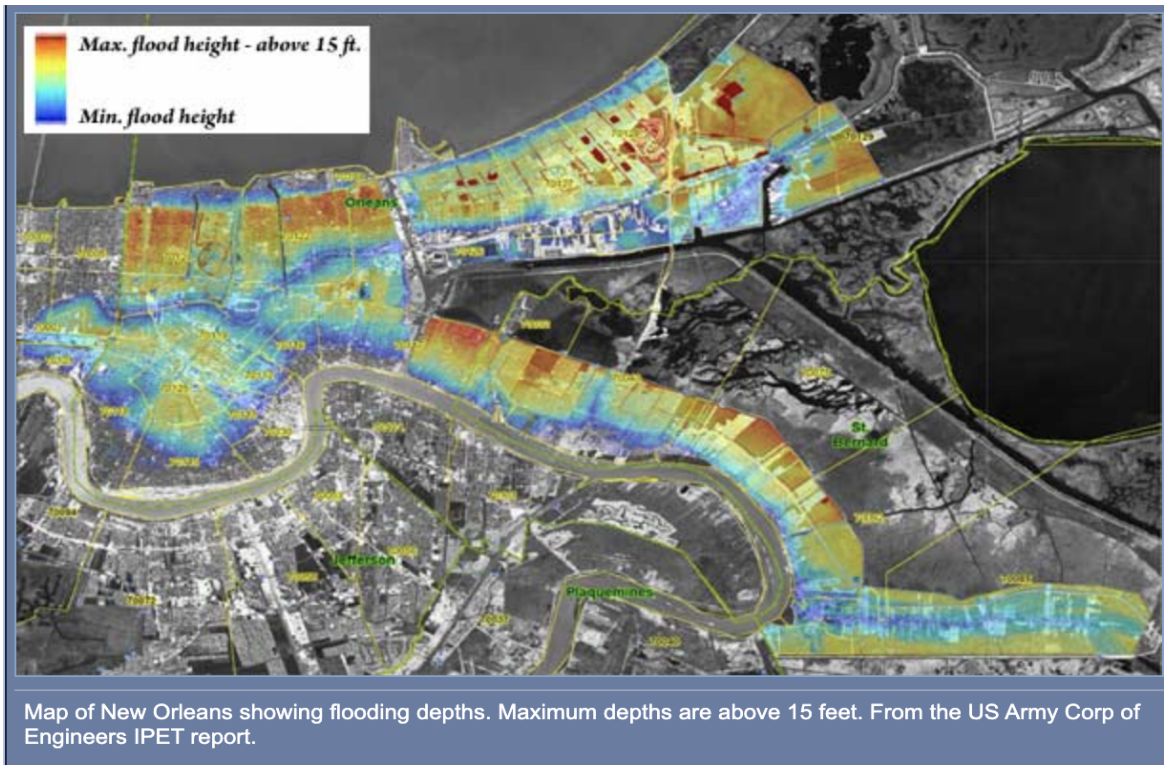
A large part of New Orleans's more current history is 2005 Hurricane Katrina, a persistent topic due to the rebuilding that occurred (Campanella 2006, 338). Although not categorized as the greatest natural disaster storm in the history of New Orleans (although considered high up in the rankings), Katrina has been categorized as the most costly and damaging tropical storm in United States' history, coming to a total of $170 billion in damage across all areas affected (Britannica, 2020). New Orleans has been one of the most affected cities by this disaster, and as Clark discusses, it has been the centre of rebuilding since the disaster (Campanella 2006, 338). Unfortunately, this disaster has disproportionately affected specific groups in New Orleans and is an example of environmental racism and injustice. As will be

discussed, accessibility limits were significant issues in the evacuation process, and the evacuation and death toll by race was disproportionate to non-white people (Hurricanes: Science and Society, 2020). In the article "Climate Justice for Black New Orleans," Mann (2006) explores how minority populations are the ones taking part in the rebuilding process but not benefiting from it in any way (Mann 2006, 18). Furthermore, this author discusses how the corporate elite have benefitted and contributed to the issues New Orleans is facing (Mann 2006, 18). Many parts of the wealthy and white areas segregated in the city were rebuilt and were functioning again by the time Mann wrote his article and were functioning. In contrast, many minorities and more impoverished areas continued to suffer where residents did not have their homes (Mann 2006, 19). Unfortunately, the history, including recent 2005 events, has reinforced racist planning practices and environmental racism and injustice in New Orleans (Mann 2006, 20). This planning creates a 'new' New Orleans that is much whiter and wealthier, pushing out those not fitting into that category (Mann 2006, 20).

In the article "The city that shouldn't be: New Orleans," Malena (2014) discusses how the city of New Orleans has been historically dominated by colonialism throughout its entire history, from 1718, until the present (Malena 2014, 204). As discussed in the historical account in this essay, segregation has been a large part of the city's structure. It has been reinforced heavily throughout its built form from racist colonial planning practices (Malena 2014, 210). The article by Malena explores how the city's segregated organization was built to have a central 'hub' and square for a specific race and class, being white and wealthy (Malena 2014, 215). The outer neighbourhoods were built for the remaining people who were not deemed essential or esteemed, often minority groups and lower socio-economic statuses (Malena 2014, 215). This structure has played a significant role in the structure of race-class relations and the rebuilding and revitalization of the city after the natural disasters that have taken place (Malena 2014, 215). Despite slavery and segregation being officially over during Hurricane Katrina in the United States, this built form has reinforced these relations. It continues to affect the city of New Orleans (Malena 2014, 208).

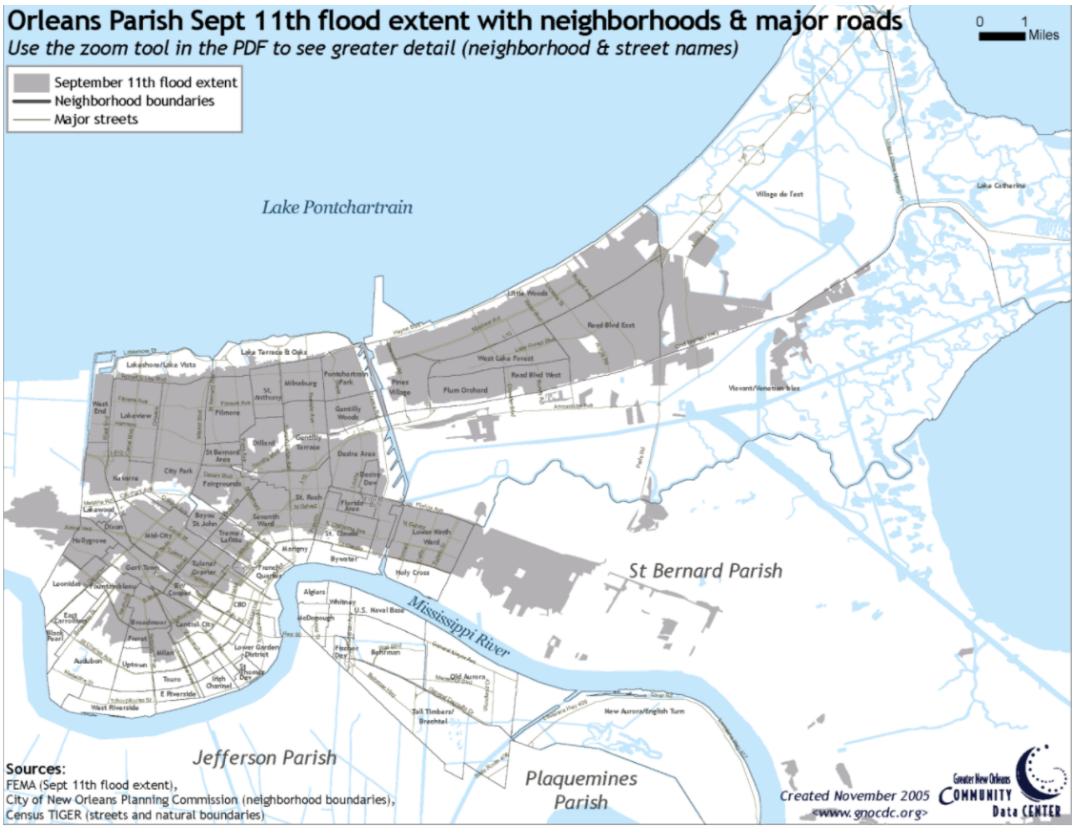
Background of Hurricane Katrina

Hurricane Katrina was a devastating and extreme natural disaster that hit a large portion of the southeastern states of the United States, specifically Louisiana and Mississippi (Britannica, 2020). The disaster started on August 23rd, 2005, and killed over 1,800 people, becoming the third deadliest hurricane in United States history (Hurricanes: Science and Society, 2020). The disaster is the costliest in US history, rounding out to over 170 billion US dollars (Britannica, 2020). Over four days, the hurricane worsened, with winds picking up to over 170 miles per hour (275 km per hour), categorized as a category four hurricane (Britannica, 2020). As the storm hit the affected areas, including 26 feet (8 metres) high surges, people began to evacuate: about 1.2 million people evacuated from New Orleans, but almost 100,000 people did not (Britannica, 2020). Accessibility limits were significant issues in the evacuation process (Hurricanes: Science and Society, 2020). With levee systems destroyed, extreme flooding beyond just coastal locations was seen, and New Orleans saw 80% of their city flooded (Hurricanes: Science and Society, 2020). With levels as high as 15 feet and issues with pumping stations from hurricane-related damage and a location below sea level, New Orleans suffered an arduous recovery process, taking days to respond (Hurricanes: Science and Society, 2020). The people of the city were fighting for their lives, many trapped in dangerous situations; many of their homes were destroyed, over 800,000 housing units (Hurricanes: Science and Society, 2020).



Map of New Orleans showing flooding depths. Maximum depths are above 15 feet. From the US Army Corp of Engineers IPET report.

Source: (Hurricanes: Science and Society, 2020)
Note: A map of New Orleans demonstrating the depths of flooding across the city during Hurricane Katrina.



Source: (The Data Center, 2021)
Note: Map of New Orleans showing where the flooding occurred in relation to neighbourhoods and major roads.

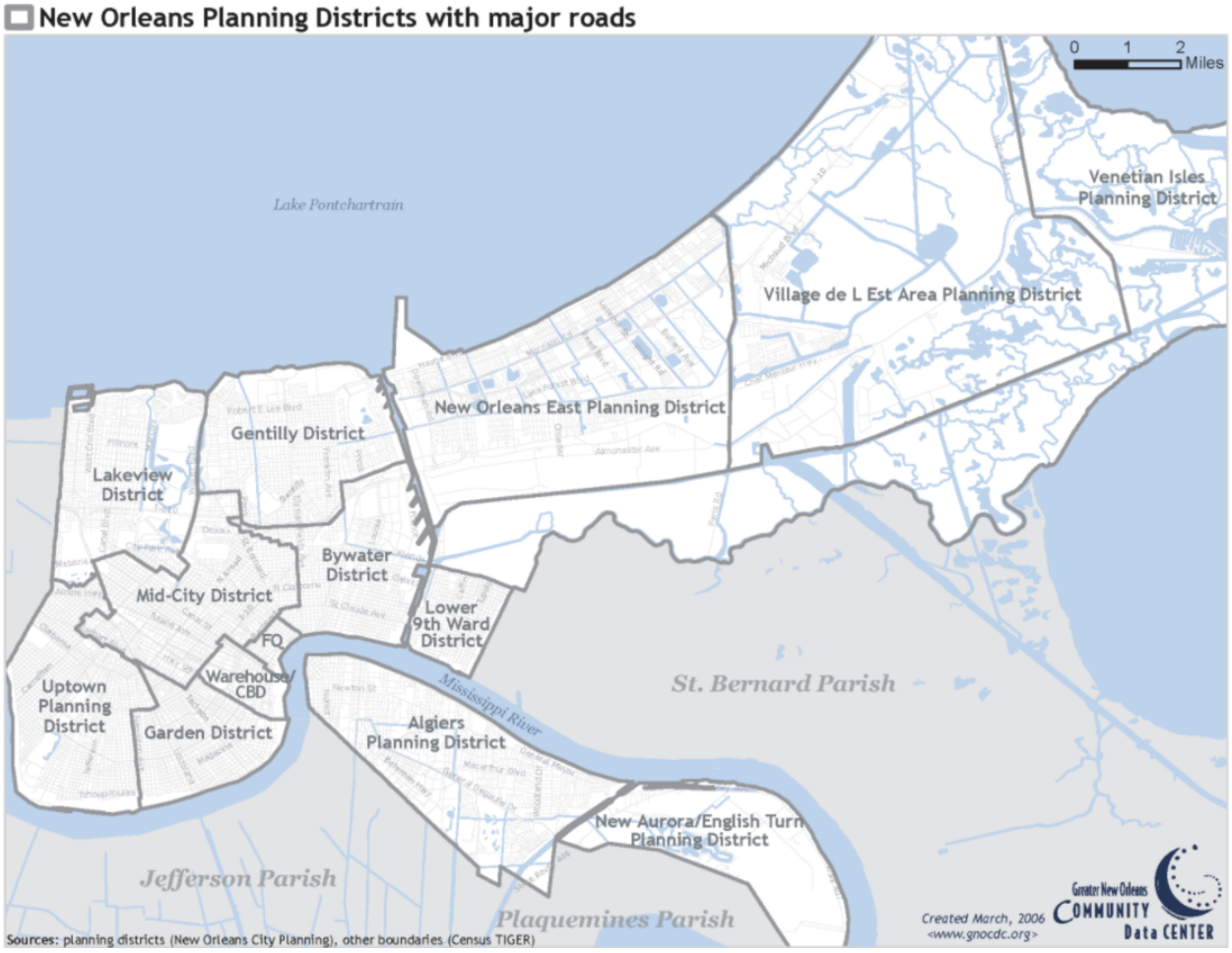
Besides the impacts of the disaster, the delayed response became an issue of food, water and heat regulation for the remaining people (Britannica, 2020). It took weeks of effort to scratch the surface on the initial recovery, with significant help from the surrounding countries of Mexico and Canada (Britannica, 2020). The long-lasting impacts on the population have been reported to be over 29% from Hurricane Katrina in 2005 up to 2011 (Britannica, 2020). One of the most significant issues with Hurricane Katrina was the environmental racism connections made in scholarly analysis post-disaster. Besides 'bad planning' with a lack of plans in place, New Orleans has been heavily criticized for inadequate infrastructure, especially in neighbourhoods made up of racial minorities and lower-income people, creating significant disadvantages (Nixon 2011, 55). This disaster is a crucial example of environmental racism. White residents of New Orleans, who have a higher socio-economic status, saw higher levels of safety and more minor damages than racial minorities and lower-income residents (Nixon 2011, 57). More impoverished and racialized communities were found to be located and built next to flood levees, which were not maintained and which failed during the hurricane, highlighting the levels of discrimination and inequity the disaster (Nixon 2011, 57).

As I discuss in my recommendations, Hurricane Katrina emphasized the lack of inclusive infrastructure (education, transit, healthcare, etc.) that would have helped prevent and mitigate disasters as such, as well as other climate change effects (Iversen and Armstrong 2008, 6). The authors also make it very clear that the state of infrastructure in New Orleans "was surely worsened but not caused by Katrina" (Iversen and Armstrong 2008, 27). 'Crumbling infrastructure' that began pre-Hurricane Katrina, which included lack of jobs, resources, etc., played a role in how hard hit the city was and how difficult it was to recover and also grow again after the fact (Mehaffy 2015). Climate resilience was tough to achieve where resources did not flourish for the city or the community and residents (Mehaffy 2015). Lower-income and racialized residents of New Orleans faced higher levels of evacuation ability, and resilience/recovery efforts because of lack of infrastructure that would have assisted these vulnerable groups to survive and bounce back after Hurricane Katrina (Oceans of Data Institute,

2019). As I will discuss, the growth of social infrastructure can assist with climate justice and resilience efforts, as we learn from New Orleans (Dodman 2009, 7).

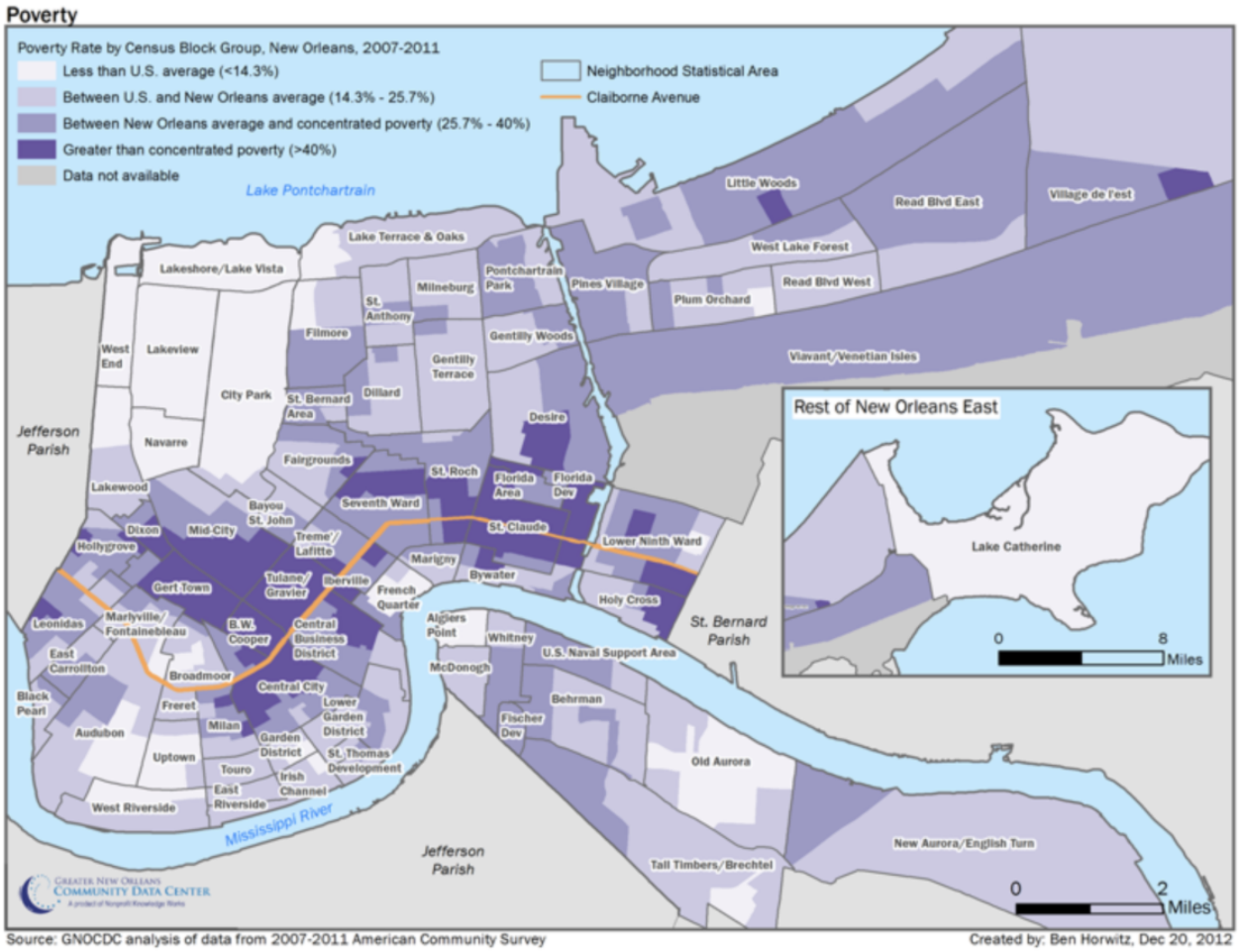
The intense impact of Hurricane Katrina, as described, serves as an example of how extreme weather affects the most vulnerable populations. The impacts of environmental racism are discussed further in the next section. Post-Hurricane Katrina planning in New Orleans then tried hard to be equitable, as will be discussed in Chapter Five (Recommendation Three: Integrated and Local Planning Practices).

Injustices in New Orleans



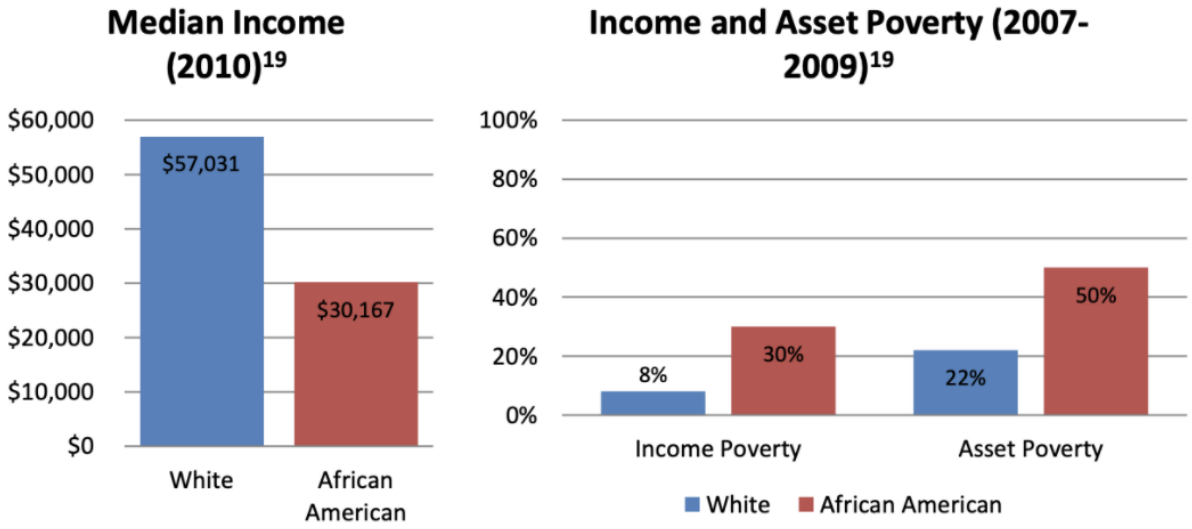
Source: (The Data Center, 2021)
Note: A map of New Orleans showing where the Planning Districts are in the city, also showing major roads surrounding.

As touched upon, Hurricane Katrina brought to light many of the issues of injustice and racism in New Orleans. Extreme weather seems to affect the most vulnerable populations. Hurricane Katrina emphasized the lack of inclusive infrastructure (education, transit, healthcare, etc.) that would have helped prevent and mitigate disasters, as well as other climate change effects (Iversen and Armstrong 2008, 6). New Orleans sees exceptionally high levels of poverty and often sees it concentrated in specific neighbourhoods, as outlined on the map below (The Data Center, 2021). New Orleans also sees a high amount of health inequities, housing inequities, and other characteristics of social vulnerability, especially among lower-income or racialized communities (Finch et al., 2010, 181).



Source: (The Data Center, 2021)
Note: A map of New Orleans showing poverty levels based on a colour system (legend available) in relation to neighbourhoods and areas in the city. This map is helpful in comparison to the flooding level map of New Orleans.

These challenges are faced by non-white New Orleans residents at a much higher rate (City of New Orleans Health Department, June 2013). The chart below outlines these extreme disparities between white and non-white communities in New Orleans that enforce inequities and injustices (City of New Orleans Health Department, June 2013). These income differences and neighbourhood segregation of race and income have persisted for years (Finch et al. 2010, 181). An article from NOLA.com, a local news source for New Orleans and surrounding Louisiana, reported on July 19th, 2019, "New Orleans is 2nd worst for income inequality in the U.S., roughly on par with Zambia, report says" (McClendon 2019). Therefore, lower-income and racialized residents of New Orleans face and continue to face higher levels of environmental risk, disaster vulnerability, evacuation ability, and resilience/recovery efforts (Oceans of Data Institute, 2019). When Hurricane Katrina hit, 85.5% of white New Orleans residents could evacuate, at a shocking difference of only 64.5% of black New Orleans residents able to evacuate (Toldson et al. 2011, 362).



Source: (City of New Orleans Health Department, June 2013)
Note: Charts demonstrating the Median Income (2010) of New Orleans residents based on race, and Income and Asset Poverty (2007-2009) of New Orleans residents based on race. These charts help to display the inequities among income and poverty of New Orleans residents based on race.

Challenges for just planning have always been an issue in New Orleans, specifically pre-Hurricane Katrina. The city itself is planned and positioned so that higher elevated lands (more secure from natural disasters) are dominated by white New Orleans residents, who also happen to have more wealth (Deitz and Barber 2015, 2). The map below outlines the white vs. black

population across the city of New Orleans pre- and post-Hurricane Katrina (2000 vs. 2013) (Deitz and Barber 2015, 15). This map displays how areas that were rebuilt and invested in (and also had lower levels of rental units, etc.) became white-dominated post-Hurricane Katrina (Deitz and Barber 2015, 16). Pre-Hurricane Katrina had high levels of white-dominated neighbourhoods with better access to healthcare, facilities, housing options, and overall higher levels of wealth and investment (Deitz and Barber 2015, 16). The same groups continue to suffer pre and post-Hurricane Katrina–being marginalized and vulnerable groups (Deitz and Barber 2015, 16).

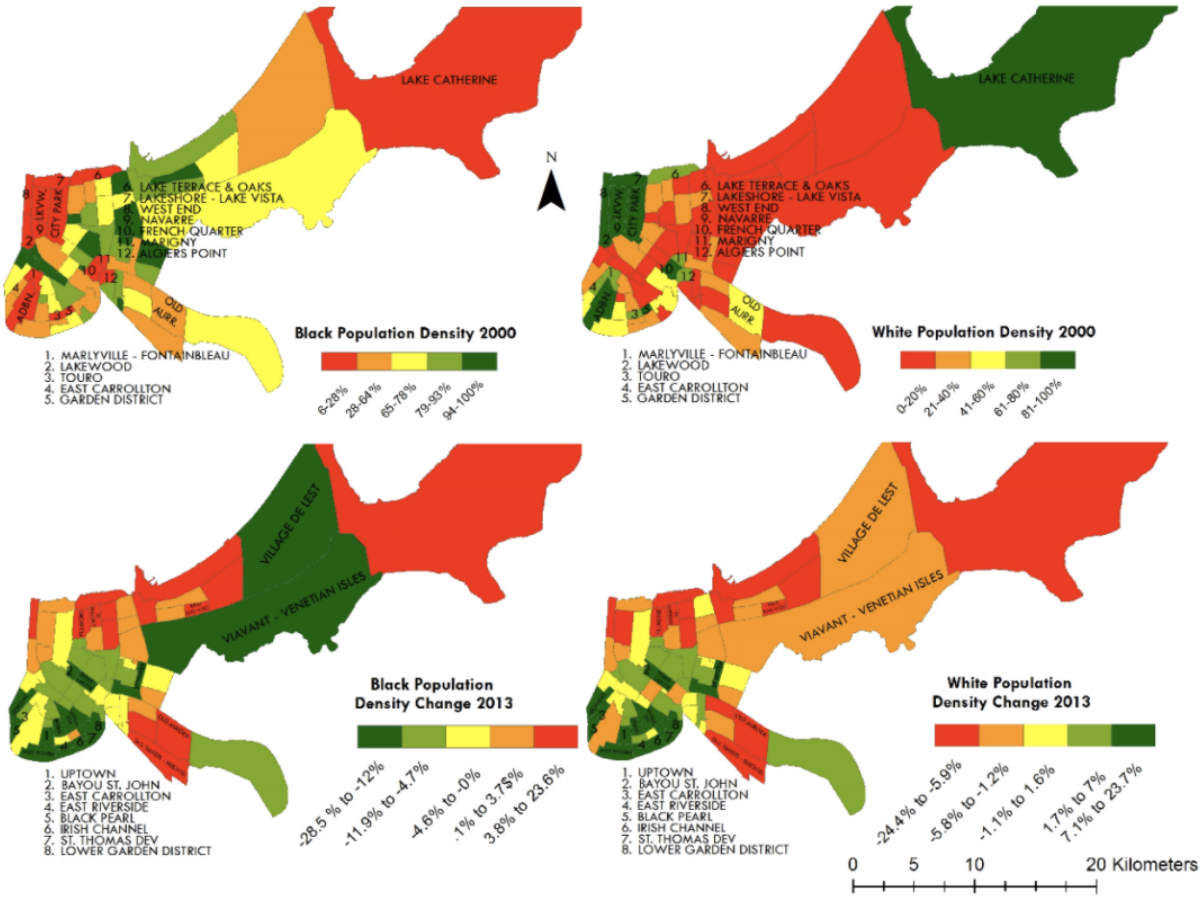


Figure 5. Black and white population density (2000) and quantile population change

Source: (Deitz and Barber 2015, 15)
Note: The four maps help to colour code density changes of white and black residents (2000-2013) before and after Hurricane Katrina in New Orleans. Areas that were rebuilt and invested in became white-dominated post-Hurricane Katrina, whereas neighbourhoods that have a higher population density of black residents saw more Hurricane damage.

The critical planning scholarship of New Orleans outlines the inequities of planning, especially in the face of the climate crisis (Haletky 2006, 93). Although there have been significant changes to achieving just climate planning post-Hurricane Katrina, New Orleans still struggles, partially due to the long-term impacts of Hurricane Katrina itself. With new plans in place, such as *Climate Action for a Resilient New Orleans*, some changes have been attempted to be made in New Orleans and to be learned from Hurricane Katrina's mistakes and tragedies (City of New Orleans, 2017) . Some scholars argue that the ongoing recovery of New Orleans is still set in racist and unjust practices, excluding these vulnerable groups from the recovery process (Finch et al. 2010, 200). Some scholars believe that although there still is much work to be done, with work from activists and improved government plans and policies, there is hope in creating a stronger and more just New Orleans for the future (Haletky 2006, 97).

This background of New Orleans and the planning scholarship confirm my personal beliefs of urban planning having the control to perpetuate racism, even post-colonialism, and only equitable, community-based planning practices can solve the issue. A very much political process, planning yet still often ignores equity and community in decisions which negatively affect specific communities (Yiftachel 1998, 399). Time and time again, we can see how postcolonial effects are perpetuated by urban planning decisions, by developing through specific lands of Indigenous or communities of racial and low socio-economic status, highlighting the racism in the field (Yiftachel 1998, 399). After developing this point of view, I believe we can use the case study of New Orleans and Hurricane Katrina, alongside the planning scholarship, to help incorporate equity and community in planning processes for Scarborough and other communities, as will be proposed (Yiftachel 1998, 399).

Conclusion

In conclusion, this section aimed to provide a background and history of New Orleans and the experiences that have shaped the city. New Orleans provides a good case study of understanding the mistakes and struggles of 'bad' or non-existent climate planning. The lessons learned and changes made today can be helpful for other areas such as Scarborough when updating and implementing better climate justice planning. Although this section provided an

overview, more specific instances of the mistakes and lessons learned are discussed throughout my recommendations.

CHAPTER THREE - Recommendation One: Community-Based Planning

The following three chapters outline three recommendations for a climate justice plan in Scarborough, which I believe may address the most prominent gaps of the climate justice and planning process in Scarborough. These recommendations draw from examples of New Orleans, specifically how problems have manifested, how they solved them or tried to solve them. Scholarly evidence is provided to bridge my recommendations as plausible and practical solutions.

The format for each of the three recommendations is the same: I begin with a statement of the proposed recommendation, discuss the challenges facing Scarborough with respect to the identified gap, draw upon the lessons learned from New Orleans' post-Hurricane Katrina experience, draw upon the more useful scholarship that helps me to understand the problem conceptually, and then confirm my proposed solutions.

Recommendation and Proposed Solution

Recommendation One: More equitable and resilient climate change planning can be achieved through increased community engagement tactics shaping plans and solutions. Processes and plans must incorporate grassroots and community groups in the climate change planning process to aid in more resilient solutions (mitigation of climate effects such as flooding, etc.) and more equitable solutions (acting as community leaders and facilitators). Communities and specifically vulnerable communities can speak to their struggles and needs in a defined way that can create solutions.

Creating shared goals and plans with various actors and stakeholders provides insight, promotes engagement, and overall creates a more robust plan beyond the goal of climate justice (Chu et al. 2016, 382). For this recommendation, actors and stakeholders can include grassroots organizations, different levels of government (Provincial, Federal, municipal), global actors,

external private actors and any other party that can aid with the best development for the local climate planning (Chu et al. 2016, 390). Bringing these actors to the table and engaging them in the policy process allows for more concrete goals and achievements across the entire plan (Holland 2017, 408). Although the goal is to encourage climate justice to the best of the plan's abilities, engaging with other actors can help curate goals and execute them well. Creating a better plan begins with a range of reliable resources, and this step would strengthen this aspect (Holland 2017, 408).

Increasing community engagement will not only allow for more external aid in creating climate adaptation plans but provides a way to capture and identify the concerns, goals, and limitations of various residents (Holland 2017, 408). The best way to capture and include these people and groups is through engagement (Holland 2017, 408). The City of Toronto achieved substantial levels of climate justice in their Resilience Strategy through this strategy (City of Toronto, 2019). Community engagement is relevant and needed through all stages of the policy process to increase climate justice using this bottom-up approach. This additional feature would provide many benefits, ranging from a better-formed policy and plan itself and keeping and maintaining resident happiness and maintaining and increasing justice and equity in planning (Waveney District Council).

Scarborough Context

One of the critical planning problems in Scarborough is the sheer size of the City of Toronto to which it belongs. Although the City of Toronto is "one city," it retains seven-city halls/civic centres to house staff, Committees, the public, and others (City of Toronto, 2018). Separate offices reflect the diversity of the City of Toronto and the previous makeup that existed pre-amalgamation (Kushner and Siegel 2003, 1050). The City of Toronto even addresses specific urban design guidelines, community energy plans, and other policies specific to each of these areas, which include North York, Scarborough, Etobicoke, Downtown Core, and others (City of Toronto, 2018). However, climate justice and general climate plans tend to be written for the entire city when there are specific areas and communities of the city, such as Scarborough, North York, Etobicoke, etc. that could use localized plans. All of these areas have different situations, populations, built form and resident needs, and struggles. A general plan for the entire city

drafted in a downtown office in City Hall takes away from the unique struggles and issues areas may face. Even specific areas and communities within Scarborough have different needs (CBC News, 2016).

The City of Toronto plans take climate justice into account through their specialized reports concerning their *TransformTO* plan. *TransformTO* demonstrates a commitment to equity and climate justice, as highlighted through the title of their plan, *TransformTO: Climate Action for a Healthy, Equitable and Prosperous Toronto* (City of Toronto, 2018). The *TransformTO* climate action plan goes beyond the specific climate adaptation and mitigation plan. As stated, included are short-term goals, update reports, various resources, and other plan forms in various ways. Also included are Community Engagement Reports and, most importantly, climate justice, the Equity & Engagement Report. The Community Engagement Report served as a way to get Toronto residents involved in the process of a low-carbon future in Toronto (City of Toronto, 2018). Toronto reached out to over 2,000 residents, stakeholders, and other community actors over a year before creating the Official Plan (City of Toronto, 2018). Although this is a large cohort to consult for the planning process, numbers are less important than the actual impact and level of engagement these groups have.

Although the City of Toronto recognizes climate justice as an essential part of climate adaptation plans, grassroots organizations still promote and create a more environmentally just city. Climate justice ideas are prevalent in civil society through grassroots organizations. These include Toronto350.org, which has a mission of climate action, including justice as a value (Toronto350). Toronto People's Assembly on Climate Justice, an annual assembly, hones in on the issue of climate justice specific to the City of Toronto and aims to take action and make a change (The Council of Canadians). A further Toronto-specific organization is the Toronto Climate Action Network, focusing on climate initiatives and ways to help climate change (Toronto Climate Action Network). The Atmospheric Fund (TAF) is also a relevant grassroots organization in Toronto (TAF). Some other critical Toronto-based organizations include Social Planning Toronto, Toronto Environmental Alliance (TEA), Environmental Defence, Ecojustice, Black Lives Matter Toronto, and many more. It is essential to note the work at local college and university groups through student unions and groups. Although grassroots organizations are

important external actors, they often have the chance to take part in collaboration with the City government internally to help achieve climate equity and justice goals (City of Toronto, 2019). Another initiative is incorporating "Local Champions" to better inform their planning processes (City of Toronto, 2019). In an interview with Scarborough resident and City of Toronto Transportation Planner Andrew Au, he outlines how merging community planning with climate planning could naturally draw out an equity and justice lens in the process. Au states with lots of nonprofits doing work in Scarborough and the rest of Toronto, utilizing these groups with an organized body could help harness their goals and resources to create change at a climate justice level. Therefore, there are multiple ways in which climate justice is recognized and worked towards, especially with engagement with external actors to strengthen their goals. Unfortunately, these organizations are city-wide, suggesting a need for more area-focused (i.e. Scarborough) to achieve specific goals and needs.

The *Toronto Resilience Strategy* (2019) outlines areas that need to be considered as "Toronto Neighbourhood Resilience Project Hubs", which includes three neighbourhood hubs in Scarborough (City of Toronto, 2019). The strategy also outlines four Scarborough neighbourhoods that possess a "Local Champion" which will assist in achieving community-led goals and have community organizations act as leaders in the process (City of Toronto, 2019). I wish to see these Scarborough groups participate in the implementation phases of this strategy, as well as in future implementation of *TransformTO*. Allowing Scarborough-led community groups to facilitate change within Scarborough would be most effective. In an interview with a City of Toronto planner, a key focus moving forward with these larger plans is incorporating equity efforts through public consulting with an equity lens during development. I look forward to seeing increased community groups in this process, and specific community groups that advocate for areas such as Scarborough.

A CBC news article published in 2016 further highlighted the disparities found in Scarborough post-amalgamation, celebrating the Scarborough Community Renewal Organization (SCRO) formation, made up of five Rotary Clubs of Scarborough (CBC News, 2016). This organization revealed the extreme issues and stigma Scarborough faces that affect its growth and flourishment, leaving the people who reside there with barriers (CBC News, 2016).

They go on to agree with accounts of amalgamation taking the most severe toll on Scarborough and having long-lasting effects of being "left behind." (CBC News, 2016). Between 2002-2012, the entirety of the City of Toronto had a growth of 68,000 jobs, but Scarborough lost over 1,700 jobs during that same time (CBC News, 2016). The founders of this group used the model of a Saint John, N.B., Canada community planning group that bridges public planning and private development, titled "Benefits Blueprint." (CBC News, 2016). The goal is to allow for large projects to have equitable growth and distribution and benefits across all city areas, much similar to what this group aims to achieve (CBC News, 2016). Utilizing these groups in the planning process, as the City of Toronto advertises and wishes to increase, can help achieve higher equity and civic engagement levels in "ignored" and needed areas such as Scarborough.

New Orleans Background

New Orleans is a key and prominent example of grassroots and social justice organizations taking a prominent role in city-building and planning, especially post-disaster when Hurricane Katrina hit in 2005 (Irazabal and Neville 2007, 131). Local organizations such as 350 New Orleans and Colloqate hold importance in climate justice efforts and other organizations encompassing New Orleans. These include the Deep South Centre for Environmental Justice, Grassroots International, Gulf South Rising, the Jane Place Neighborhood Sustainability Initiative, and Black Lives Matter. These organizations have worked tirelessly to improve plans and policies in New Orleans and achieve solutions beyond government intervention, especially after Hurricane Katrina (Irazabal and Neville 2007, 131). Grassroots organizations have historically done much legwork to advance social and climate policy progression in New Orleans (Irazabal and Neville 2007, 131). The history and significance of their work post-Hurricane Katrina is discussed to better understand the impact community engagement can have on a city, especially post-disaster.

Grassroots and community organizations have a positive impact on neighbourhood planning processes and increasing engagement in the community. The article "Neighbourhoods in the Lead: Grassroots Planning for Social Transformation in Post-Katrina New Orleans?" by Clara Irazabal & Jason Neville (2007) reports explicitly how citizens post-Hurricane Katrina were left to create solutions for themselves. This task was left to residents because they received

little to no support from city planners to rebuild New Orleans at the time. The authors quoted a resident of a neighbourhood in the city, stating, "We're on our own." (Irazabal and Neville 2007, 131). Often coined as a 'citizens' revolution,' grassroots and community organizations dominated the planning processes in 2005 after Hurricane Katrina, which destroyed just about 80% of New Orleans (Irazabal and Neville 2007, 131). The main goals of the residents were to work towards rebuilding the city, in terms of infrastructure, and its people (Irazabal and Neville 2007, 131). Neighbourhood-based planning was at an all time high, with residents hiring their own planners to create a planning process that functioned outside of city governance and funding (Irazabal and Neville 2007, 131). New Orleans has always struggled (pre and post Hurricane Katrina) with key issues of lack of support, funding, and community engagement (Irazabal and Neville 2007, 131). Hurricane Katrina was a key identifier into how citizens needed to take control, and the positive effect it had on the city was unprecedented. Although my proposed recommendation and this article do not suggest a neighbourhood takeover of planning processes in order to achieve better planning processes, allowing for more inclusion and power of the people could allow for more revolutionary solutions for just and resilient climate planning. New Orleans' vast experience in grassroots power can serve as an example of the work these groups can do for a city.

How did the City of New Orleans drastically alter from post-Hurricane Katrina, with reliance on independent planning solutions, and no direction, to developing the *Climate Action for a Resilient New Orleans,* which stands as the world's first comprehensive city resilience strategy according to the U.S. Climate Resilience Toolkit (2017). Well, the city took notes. The City of New Orleans and other government levels received significant backlash and criticism both to the response to the disaster and the delay in the response and efforts (Holguín-Veras 2007, 78). From appointing its first chief resilience officer, Jeff Hebert, to investing in flood planning and community engagement strategies, New Orleans has worked hard in the over 15 years after Hurricane Katrina to correct its mistakes (City of New Orleans, 2017). Significant changes have been made to their city investments, justice work, and climate plans and proposals through that time (City of New Orleans, 2017). Although a devastating natural disaster should not have been the alarm bells to implement these solutions, it was, unfortunately, the push to do so. Now, New Orleans works to continue developing community planning strategies to achieve what this recommendation suggests, being just resilience. Although a plan is curated for the

whole of New Orleans, the plan outlines some communities that do need more focus due to climate risk and equity concerns, including the Gentilly Resilience District, and the Downtown Development District (City of New Orleans, 2017).

In an interview with Melissa S. Lee, Director of Planning and Community Engagement of Concordia in New Orleans, Louisiana, she spoke of the efforts of the Unified New Orleans Plan. This plan was drafted after Hurricane Katrina and Hurricane Rita with the work of herself and her firm, after two failed attempts of a post-disaster plan and what the resettlement plan would look like. The plan outlined protecting neighbourhoods, flooding measures, affordable housing, and other features that would assist in the recovery of New Orleans. Lee states how an important aspect of this plan was the extensive community and stakeholder engagement that took place between the 12 city districts, other planning firms, and over 9,000 community members, as well as 1,000 displaced residents. This extensive process, which took place in only 6 months, received a 91% approval rating from the community and approval from City Planning, City Council, the Mayor and the state, to receive funds for rebuilding. Lee builds on this experience to express how the most impactful and relevant plans for cities must have a wide array of stakeholders and radical community engagement to help operationalize these plans and democratize decision making through cultivating local leadership. Lee provided great insight to the experiences of New Orleans and how this has impacted better planning processes, community engagement playing a key role in achieving this.

In an interview with Aron Chang, an Adjunct Lecturer at the Tulane School of Architecture in New Orleans, Louisiana, he outlines how planning and agencies are rooted in power structures, and how this affects the planning process. Chang outlines how New Orleans has over 1800 nonprofits in a city with less than 400,00 people, and still struggles to create meaningful community engagement with the capacity to alter and influence budgets, goals and other important areas of plans. Incorporation of deeper involvement could assist in this. Numbers are less important than the actual impact and level of engagement these groups have. Each organization has a separate agenda (such as housing justice, economic justice, etc.), and the challenge is how to link these and create core principles that encompass climate justice. Chang believes we must as planners become activists ourselves in order to achieve system change. As

the recommendation suggests, working at a deeper level with communities and community groups could assist in this.

Although the City of New Orleans now has a better understanding of the effects of disaster and inequity on the city over 15 years after Hurricane Katrina, it took years of independent community grassroots efforts to incite change at the city planning level (Irazabal and Neville 2007, 131). There are now plans and strategies in place, such as the *City of New Orleans Neighborhood Participation Plan* and integrated community engagement strategies in their *Climate Action for a Resilient New Orleans* Plan (City of New Orleans, 2017). Many of the solutions outlined in the plan also outline community needs and struggles that require addressing (City of New Orleans, 2017). There are significant lessons learned from this example of New Orleans post-Hurricane Katrina. Although independent community plans and efforts are helpful and can be effective if provided the correct context, the key in developing positive change in New Orleans has been the merging of community participation and efforts, grassroots integration, *and* city planning expertise and delivery (Irazabal and Neville 2007, 131). Especially in the Canadian context, planning efforts are very much dependent on municipal and provincial government initiatives (Aylett 2014, 9). Rather than working parallel to these governments, using a model such as New Orleans and integrating into municipal plans can be more effective and less conflicting.

Scholarly Evidence

Community knowledge and engagement are mandatory in achieving justice *and* better planning solutions. The article "Black feminism and radical planning: New directions for disaster planning research" by Fayola Jacobs (Texas A&M University, USA) provides a good background for the importance of community knowledge to achieve just climate planning, specifically in the context of disaster planning, heavily intersecting with the background and lessons learned from New Orleans. The paper argues that social vulnerability research has contributed to a better understanding of disasters and inequity in planning (Jacobs 2018, 27). Unfortunately, the planning process still continues to exclude essential items such as community knowledge, intersectional oppressions, and community activism, which the author argues can achieve higher levels of success and change if addressed (Jacobs 2018, 27). This author also

speaks to social vulnerability and how classism and racism affect how disasters hit these groups (Jacobs 2018, 27). Working towards removing systemic oppression in planning processes can work hand in hand with better resilience planning. My proposed recommendation can then address increased resilience in climate planning by allowing planners to implement more just and community-led practices.

Some challenges in the planning process include incorporating marginalized groups in the engagement process necessary for curating a just and equitable plan. The article "Community-based adaptation: A review of past and future challenges" by Tim Forsyth (2013) discusses community-based adaptation, known as 'CBA,' as a valuable tool in involving and integrating lower-income and more vulnerable people and communities in the climate adaptation planning process. Forsyth argues how CBA can also work at both the 'localist' level for better climate planning, but also to improve international development in climate change policies (Forsyth 2013, 7). CBA is widely acclaimed for assessing climate risks and infrastructure and development improvements for these communities that are most at risk (Forsyth 2013, 7). Although studied for almost a decade, CBA still works towards being implemented in local planning processes (Forsyth 2013, 7). CBA advocates how important local context is in planning for climate change, especially in assessing risk (Forsyth 2013, 7). In conjunction with my recommendation, CBA seeks to increase the knowledge and resources to obtain better solutions, completed through participation, grassroots knowledge and work, and city planning expertise (Forsyth 2013, 7). Forsyth argues that CBA can go as far as "integrating international development and climate change policy in order to achieve more resilient and socially inclusive forms of growth." (Forsyth 2013, 7). CBA could be a key learning point for Scarborough in implementing and understanding this recommendation of community-based planning further. As the idea and working concept are not new, it could be helpful to look at past attempts and uses of CBA in implementing this model for Scarborough and the City of Toronto.

These authors have all discussed how bottom-up adaptation planning works well. Another interesting point that supports the idea of bottom-up, or community-based planning, is the concept of community resilience, discussed by Sylvia Cheuy in "The Case for Cultivating Community Resilience" (2016). This report helps to understand what people are saying in

practice, as it comes from Tamarack Institute for Community Engagement in Waterloo, Ontario. The report outlines the idea of community resilience as the capacity to recuperate or rebound from a disaster (Cheuy 2016, 1). Achieving this requires community cohesiveness and forward-looking planning work towards these integrated communities. This article references the Building Resilient Neighbourhoods Project of B.C.'s Capital Region and how the report highlights the sentiment of "choosing to adopt a 'lens of resilience' requires 'a focus on community building, addressing inequities that exist for vulnerable or marginalized groups, and strengthening social ties' in ways that increase a community's capacity to respond proactively and enhance well-being even while under stress.'" (Cheuy 2016, 1). Although achieving *true* climate resilience is an essential facet of climate planning, community resilience can help achieve this. Furthermore, the fundamentals of community planning methods outlined in my recommendation would achieve these goals.

While these authors and I think community-based solutions are the most equitable, others argue that top-down approaches offer more expertise and guidance. Arguments against this solution also believe it can be time-consuming, which is already an issue of concern for the policy and process in the Province of Ontario and City of Toronto. My solution proposes bridging the expertise available through planners and the government with the community and grassroots organizations' community skills to structure the process to collaborate as equals, rather than one party leading. This may reduce the concerns of time consumption and 'lack' of expertise.

Recommendation Goals

This recommendation seeks to aid in the gaps currently found in the planning process and the lack of public participation for just climate planning in Scarborough. As discussed, although the City of Toronto has and continues to develop general civic engagement strategies, the evidence shows how isolated and excluded Scarborough is (as discussed in Chapter One: Injustices in Scarborough) (Fiedler 2011, 72). In areas such as Scarborough–with characteristics of a higher immigrant population, fewer native English speakers, lower-income levels, and less transit accessibility–there need to be more specific solutions that target Scarborough and other communities in the City of Toronto that may face the same challenges (Fiedler 2011, 72). The

City of Toronto can learn from New Orleans's experiences with extensive grassroots work to integrate a similar solution that allows for an increased number of voices to play a role in community and development planning in Scarborough.

Where organizations such as the Scarborough Community Renewal Organization (SCRO) exist, the City of Toronto can utilize these organizations even further by heavily involving them in city planning initiatives in Scarborough. Although consulted on projects currently, I advocate for a further involvement in the planning process to make active change in influencing budgets, ideologies and goals. Greater community involvement could achieve a more radical impact and possibly overhaul the existing planning framework (Cheuy 2016, 1). When grassroots organizations and city governments can collaborate their skills and strengths, they can fill any gaps that both organizations would find when working independently (Cheuy 2016, 1). In the process, residents can then be more involved and heard. With the work of SCRO and Social Planning Toronto, we can integrate and support just climate plans. When revisiting the research questions (In what ways can climate change planning be more equitable and resilient? How can plans, processes, and interventions support equitable and resilient climate change planning?), this recommendation seeks to achieve just, and equitable climate planning solutions through grassroots efforts integrated with city planning expertise and shared knowledge, rather than competing efforts of both parties. Integrating this knowledge can develop more resilient and practical plans. Furthermore, more resilient solutions are achievable when active citizenship and community resiliency are present (Cheuy 2016, 1). As discussed in Cheuy's article, climate resiliency can be achievable through community resiliency (Cheuy 2016, 1). This achievement was evident in New Orleans post-Hurricane Katrina and can serve as a helpful tool (Irazabal and Neville 2007, 131). Community-based planning and increased community consultation can help in achieving more just and resilient climate plans and solutions.

In conclusion, this recommendation suggests that more equitable and resilient climate change planning can be achieved through increased community engagement tactics that shape plans and solutions. The key takeaways of this recommendation are how processes and plans must incorporate grassroots and community groups in the climate change planning process. Meaningful engagement aids in more resilient solutions (mitigation of climate effects such as

flooding) and more equitable solutions (acting as community leaders and facilitators). Communities and specifically vulnerable communities can speak to their struggles and needs in a defined way that can create solutions (Cheuy 2016, 1).

CHAPTER FOUR - Recommendation Two: Inclusive Social Infrastructure

The following recommendation focuses on the idea of infrastructure. While the term infrastructure has many meanings, the recommendation is focused on advancing social infrastructure to achieve justice and resilience to climate change effects. This recommendation can fill in the gaps to achieve just and resilient communities for the people who live there and protect them and the built form around them from impeding climate risks. The following evidence provides context to how this could function in a place such as Scarborough.

Recommendation and Proposed Solution

Recommendation Two: Some interventions that can support equitable and resilient climate change planning include the growth of inclusive social infrastructure and development. Some of these infrastructure developments can include transit, housing, services, public space and similar resources to work towards resiliency, increased quality of life, and even economic growth. Social infrastructure can encompass hard, soft and critical infrastructure to achieve goals of social equity (Parry 2009, 75). Vulnerable populations need infrastructure and resources to both adapt and thrive when faced with climate change risks.

This recommendation proposes "inclusive social infrastructure," which I use to refer to all forms of infrastructure as possible remedies to the identified problems of climate justice, including a) soft infrastructure (health, education, government services), b) hard infrastructure (transit, roads), c) critical infrastructure (water, medicine, shelter); and d) social infrastructure (which can include all of the items discussed, but highlights a focus on vulnerable communities and needs) (Parry 2009, 75). For resilient climate planning goals and this proposed recommendation, social infrastructure is the focus. Items such as transit, community/public space, service gaps, and general accessibility are the focal point (Parry 2009, 75). I believe social infrastructure is quite inclusive to achieving the goals of inclusive social infrastructure, and

highlight some of the most important goals in achieving just and resilient climate planning. This recommendation holistically attempts to address problems of inequity and lack of resilience in climate planning.

Scarborough Context

Development of infrastructure can help reduce climate struggles and fill in the gaps of what services are missing. Scarborough is currently facing an issue with gaps in infrastructure and climate-resilient and social development (Teelucksingh 2007, 657). For example, Scarborough has a transit problem. Scarborough is heavily reliant on busses, and throughout the years, more lines, an LRT system, and subway extensions have all been promised and not implemented (Teelucksingh 2007, 657). Instead, Provincial resources have been funnelled towards Vaughan with the recently-completed extension of the subway, and currently, Richmond Hill with a planned Yonge-North Subway Extension (Toronto Transit Commission, 2021). City funding and resources are funnelled towards dealing with commuting to the downtown core, only now attempting to implement a three-stop Line 2 East Extension ("Scarborough Subway Extension"), after years of discussion (Toronto Transit Commission, 2021).

Scarborough also suffers from housing inequalities. A report titled "Environmental Justice in Toronto Report" prepared for the City of Toronto (written by Melissa Ollevier and Erica Tsang, 2007) outlined examples of Scarborough injustices through housing, stating how more impoverished areas of Scarborough had extreme levels of poorly maintained government-subsidized housing, including issues of "cockroach and rat infestation, bad smells, broken windows and poor ventilation." (Ollevier and Tsang 2007, 15). Another pressing issue in Scarborough, and specifically Mid-Scarborough are the environmental risks of where vulnerable populations live in relation to high emission facilities (Ollevier and Tsang 2007, 6). The report found that vulnerable populations including lower income, visible minorities and recent immigrants reside closely to these high emission facilities (Ollevier and Tsang 2007, 6). This is a clear example of environmental racism in Scarborough, created by industrial infrastructure (Ollevier and Tsang 2007, 6). Developing Scarborough transit, parks, green space, walkability and other forms of social infrastructure could increase the quality of life, prevent climate issues, increase accessibility and promote climate and community resilience (Dodman 2009, 7). More

resource investment must occur in order to see these changes. Scarborough being 'lumped in' with the City of Toronto post amalgamation has created this issue (Kushner and Siegel 2003, 1050). Investment is not seen as equitable across the entire city and needs more focus on plans and policies moving forward (Teelucksingh 2007, 657).

Before I undertake the context and application to the case study of Scarborough, as of June 10th, 2021, a news release from Cision reported, "Canada and Ontario invest in new $66.9 million community centre in Scarborough in partnership with the YMCA of Greater Toronto" based on new information from Infrastructure Canada (Cision, 2021). The project includes a community centre, child-care and other amenities in the Bridlewood/Agincourt community of Scarborough (Cision, 2021). The project will be a joint contribution from the Government of Canada, Government of Ontario, YMCA of Greater Toronto, and United Way Greater Toronto, all providing funding and long-term resources through the project (Cision, 2021). This form of social infrastructure may help mitigate and adapt to the risks of climate change through justice and community, as explored in the following sections of this recommendation. This new project can be a great development for social infrastructure and work towards achieving the goals of my proposed recommendation. Furthermore, the community is a vital tool in just climate resilience, as discussed and proposed in Recommendation One of this paper (Forsyth 2013, 7).

Scarborough has specific circumstances of vulnerability. Earlier I discussed the background from the research paper "Environmental Racialization: Linking Racialization to the Environment in Canada" by Cheryl Teelucksingh (2007) in previous sections. Although a good resource in discussing more generally how Scarborough is a key case study example of a racialized city with higher environmental risks (environmental racism) in Canada, it explores directly how infrastructure gaps play a crucial role in perpetuating this issue in Scarborough (Teelucksingh 2007, 657). The author states: "Arguably, the profound demographic changes in Mid-Scarborough account for why the area is not provided with either the services or the infrastructure for new immigrants and low-income residents as much as are other neighbourhoods with similar demographics. Resource gaps have had environmental consequences for marginalized residents of Mid-Scarborough, just as constraints associated with the built environment and urban planning have also had consequences for community-building"

(Teelucksingh 2007, 657). The author continues to clearly show that the community was designed for white, nuclear families with access to cars, not new immigrants relying on transit (Teelucksingh 2007, 657). As it will be discussed in the context of New Orleans, going down this path is a fast-track to climate injustices and a lack of resiliency moving forward (Teelucksingh 2007, 657). My recommendation wishes to alleviate this mounting worry for a place such as Scarborough.

Finally, to fully understand the risks Scarborough faces and the lack of social infrastructure in this area of Toronto, the article "Inner Suburbs at Stake: Investing in Social Infrastructure in Scarborough" by Deborah Cowen & Vanessa Parlette (2011) helps to explore this further. To highlight the changes in income in Scarborough in relation to the rest of the City of Toronto, the two charts below underline the differences from 1970 to 2000 (which marks the timing of amalgamation) (Cowen and Parlette 2011, 11-12). The article directly states: "A history of underinvestment in social and physical infrastructure was already evident in 1978 when the 'Metro Suburbs in Transition' report identified widespread gaps in public services. These public service gaps only deepened in the two decades between the publication of 'Metro Suburbs in Transition' and the municipal amalgamation in 1998." (Cowen and Parlette 2011, 26). Although ten years dated, this report outlined the increasing service and infrastructure gaps that link to an inherent lack of resiliency (Cowen and Parlette 2011, 26). As discussed in the scholarly evidence, these gaps link to reduced climate adaptation planning and even mitigation solutions. Emerging scholarly evidence places a heavy link on 'green' and advancing infrastructure and development as a significant contributor to better climate planning - for both adaptation *and* mitigation (Tan 2014, 4). To fully understand the necessity of this proposed recommendation, understanding the context and importance of how this problem manifests in Scarborough in principle.

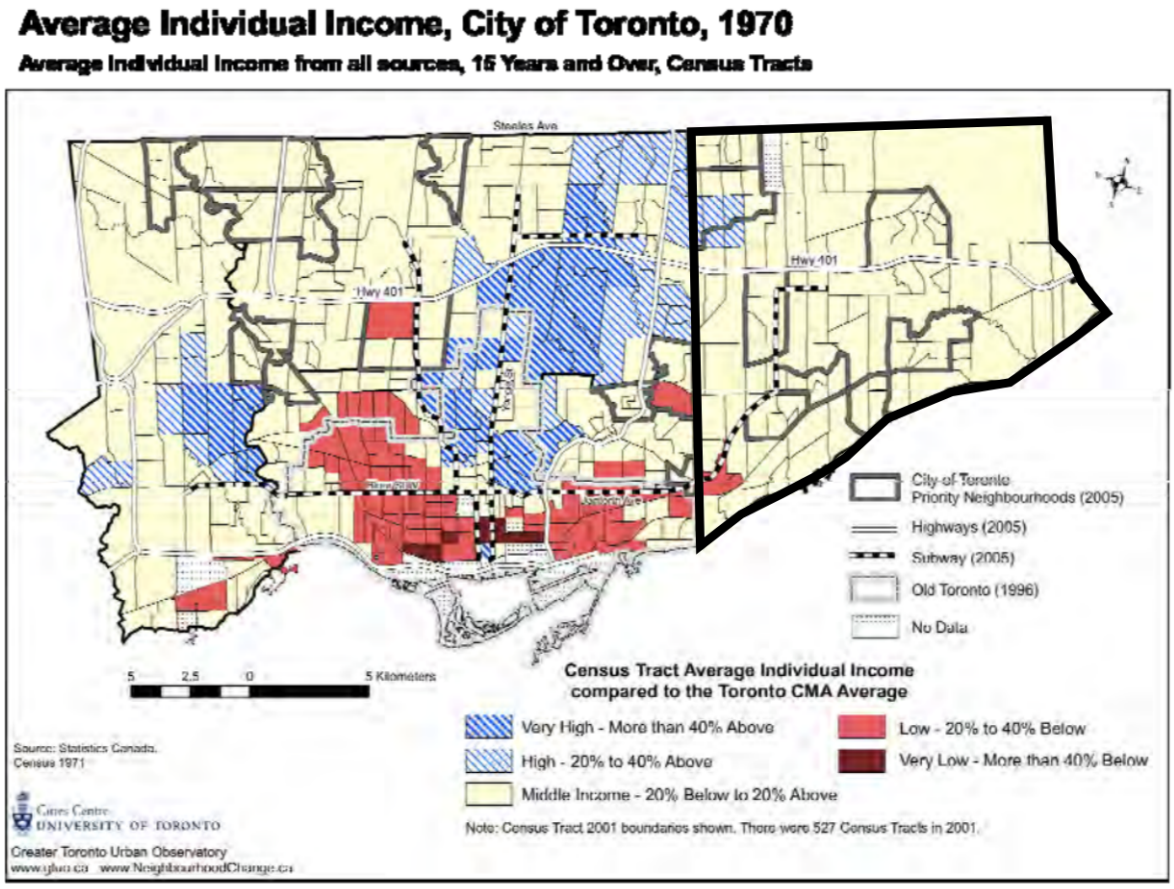


Figure 3: Average Individual Income, 1970 (Source: Cities Centre, 2010)

Source: (Cities Centre, 2010)
Note: Scarborough is outlined in the black box on the map. The map shows the Average Individual Income of Scarborough being Middle Income in 1970. The downtown core sees low and very low Average Individual Income levels.

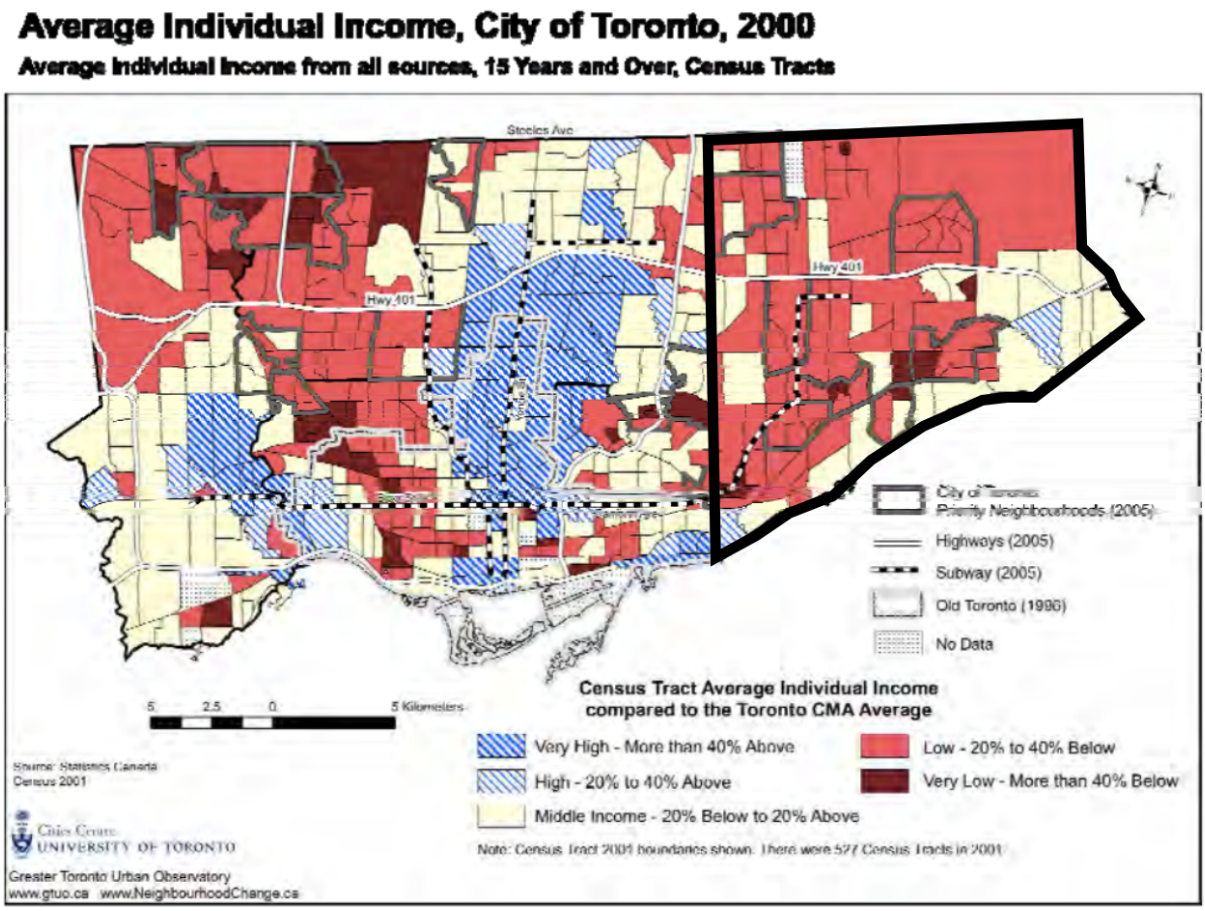


Figure 5: Average Individual Income, 2000 (Source: Cities Centre, 2010)

Source: (Cities Centre, 2010)
Note: Scarborough is outlined in the black box on the map. The map shows the Average Individual Income of Scarborough being Low and Very Low Income in 2000. The downtown core sees High and Very High Average Individual Income levels.

New Orleans Background

New Orleans is a clear example of how the lack of physical and social infrastructure in a city has a negative and robust impact on resilient climate planning and recovery responses, as seen through Hurricane Katrina (Mehaffy 2015). In the article "What We Didn't Learn From Katrina" by Michael Mehaffy (2015), the author discusses many critical planning issues pre and post-disaster, which led to the powerful effects and slow, staggered recovery process. One item the author notes is how 'crumbling infrastructure' that began pre-Hurricane Katrina, which included lack of jobs, resources, etc., played a role in how hard hit the city was and how difficult it was to recover and also grow again after the fact (Mehaffy 2015). Climate resilience was tough

to achieve where resources did not flourish for the city *or* the community and residents (Mehaffy 2015). The article directly states: "Sprawl and an emptying city core produced a 'hurricane before the hurricane' in New Orleans and the Gulf Coast." (Mehaffy 2015). This sentiment should be a clear lesson and a warning sign for large city suburbs, such as Scarborough, to avoid future infrastructure and development planning that do not support social infrastructure or community development.

As stated, New Orleans can provide lessons to other North American cities for better resilience and climate planning. An identified issue is lack of infrastructure to support climate resilience. The article "Hurricane Katrina and New Orleans: What Might a Sociological Embeddedness Perspective Offer Disaster Research and Planning?" by Roberta R. Iversen and Annie Laurie Armstrong (2008) provides a good context for the events that happened in New Orleans. The authors state how Hurricane Katrina emphasized the lack of inclusive infrastructure (education, transit, healthcare, etc.) that would have helped prevent and mitigate disasters as such, as well as other climate change effects (Iversen and Armstrong 2008, 6). The authors also make it very clear that the state of infrastructure in New Orleans "was surely worsened but not caused by Katrina" (Iversen and Armstrong 2008, 27). The article aims to teach planners and scholars that the lessons learned from Hurricane Katrina are plentiful for future resilience to climate change. One of their key takeaways is: "More broadly, assessment of network ties through an enhanced vulnerability protocol could be aimed at more inclusive and potentially more effective infrastructure planning in New Orleans—what traditional disaster scholars call 'strengthening,' both for preventive mitigation of disaster effects and for increased resilience in recovery and to establish a stronger economy for the future" (Iversen and Armstrong 2008, 30). Planners must see the co-benefits of infrastructure improvements, which can achieve social benefits and reduce climate change effects–what the proposed recommendation is providing.

Scholarly Evidence

This section discusses why inadequate social infrastructure and general substandard infrastructure serve as adverse contributors to climate planning goals, specifically justice and resilience. The report "United Nations Population Fund (UNFPA) Analytical Review of the Interaction between Urban Growth Trends and Environmental Changes: Urban Density and

Climate Change" by David Dodman (2009) seeks to understand the links between urban density and the effects on climate mitigation *and* adaptation goals. Although not the focus of my recommendation, the suburban structure is evident in creating higher levels of greenhouse gasses that challenge mitigation strategies (Dodman 2009, 7). This paper argues that higher densities and a shift to dense built form can solve issues of decreased infrastructure (Dodman 2009, 7). Furthermore, the article supports the ideas of the proposed recommendation that argue that climate change targets areas with less developed or deteriorated infrastructure, and efficient climate resilience is achievable through higher levels of infrastructure (Dodman 2009, 7). Although, the paper does provide evidence that increased density promotes better social and physical infrastructure and increased resilience for climate change (Dodman 2009, 4).

Investment in physical infrastructure is needed for resilience. A helpful resource in determining the costs of rebuilding this infrastructure is the report "The Costs of Adaptation to Climate Change in Canada: A Stratified Estimate by Sectors and Regions - Social Infrastructure" by Mohammed H.I. Dore and Ian Burton (2001). A detailed report and estimation of these costs is provided, but begins with stating that in Canada overall that both quality and quantity of public goods and infrastructure have declined from 1976-2001 (Dore and Burton 2001, 73). The report supports how investment in public infrastructure (although not specific in which level of government) is a necessary cost in achieving climate adaptation (Dore and Burton 2001, 73). To bridge the idea of built-form investment for climate planning with social needs, the brief paper "Social Infrastructure and Climate Change: Promoting a Lifestyle of Altruism and Resilience Through Social Connections in the Built Environment" by Jonathan Tan (2014) is applicable. The author presents an argument of social infrastructure being of the highest importance to combat climate change and have communities resilient to the inevitable effects to come (Tan 2014, 2). Tan's argument highlights how physical infrastructure cannot be the final or only step in achieving climate mitigation and adaptation. Social infrastructure works to protect *people*, which is a crucial issue we face when battling climate change (Tan 2014, 2). As Tan suggests, my proposed recommendation seeks to protect people, not just the city's built form. This may be useful for achieving more than equity goals, but veritable mitigation and adaptation goals (Tan 2014, 5). My recommendation can serve as a multifaceted solution for just and resilient climate

planning, especially in Scarborough, which manifests social infrastructure gaps (Teelucksingh 2007, 657).

One of the most fundamental ways to battle climate change effects is to be prepared to be resilient. Social infrastructure can provide better capacity building in order to achieve this. The research paper "Urban Transitions: On Urban Resilience and Human-Dominated Ecosystems" by Ernstson et al. (2010) directly discusses New Orleans as a case study example in the context of achieving urban resilience. Discussed are the transitions in urban governance and how cities need to withstand shock (by capacity building), adapt to change, and experiment and become innovative with solutions during times of uncertainty (Ernston et al. 2010, 537). The authors also argue that "urban governance need to harness social networks of urban innovation to sustain ecosystem services, while nurturing discourses that situate the city as part of regional ecosystems." (Ernston et al. 2010, 1(22)). In terms of climate justice planning in Scarborough, we must enhance our ecosystem services, which this article defines as similar to infrastructure services, by enhancing our urban resilience and reducing vulnerability to climate change through the growth of services and infrastructure (Ernston et al. 2010, 537). Overall, the article discusses urban resilience on a larger scale, by challenging what is defined in resilience theory in human ecosystems. The article also provides examples of urban innovation, and an agenda for research and policy (Ernston et al. 2010, 537). Although a somewhat different path and definition of social infrastructure, it bridges the ideas from my Recommendation One of community building resilience, with infrastructure (specifically green infrastructure), to build resilience in cities (Ernston et al. 2010, 537). With low amounts of green growth and sustainable development in Scarborough, this will not be easy to achieve on the current trajectory (United Way, 2004). Utilizing these strategies could help implement this recommendation and help solve the more significant issue of just climate resilience and planning.

These authors have all discussed how well-developed social infrastructure promotes quality of life, climate resilience, accessibility, equality of services, and numerous benefits (Dodman 2009, 7). The overall census in the research for this recommendation points to high levels of social infrastructure. However, this can characterize many ways and is a practical way to achieve just climate resilience. Another interesting point is that some planning practitioners

and scholars argue that suburban built form, although with high levels of social infrastructure, can be harmless (Pollalis 2016, 282). The important note to this theory is that social and overall infrastructure is well maintained and upkeep to 'good' planning standards (Pollalis 2016, 282).

Recommendation Goals

As discussed, this recommendation seeks to achieve just climate resilience by filling in the current gaps in the social infrastructure in Scarborough by drawing from post-disaster lessons of New Orleans. Despite obvious social and equity repercussions to declining and deteriorated infrastructure, it poses significant economic and climate risks, which should concern areas such as Toronto (United Way, 2004). Investing in Scarborough is an essential step in achieving climate justice and resilience goals for the City of Toronto, outlined as a fundamental goal in *TransformTO* (City of Toronto, 2021). The scholarly evidence proves the necessity of social infrastructure for general livability in times represented by climate risks and equity issues. In order to achieve inclusive social infrastructure, we must move away from focus on one infrastructure goal, and work towards complete communities. My recommendation seeks to push for more than a percentage of affordable housing units, and understand how communities such as Scarborough require transit and roads development, proximity to healthcare and community links that can assist in climate justice resilience (Dodman 2009, 7). My proposed recommendation attempts to fill in the gaps to achieve just and resilient communities for the people who live there and protect them and the built form around them from impeding climate risks.

In an interview with Aron Chang, an Adjunct Lecturer at the Tulane School of Architecture in New Orleans, Louisiana, he states how resilience and green infrastructure is just ‘language’ but not actually shifting how we plan or how we build for climate change and equity. Chang goes on to outline how the radical infrastructure and systems change that took place during the COVID-19 pandemic illustrates to us how we need to deal with climate change, as climate change will play out just as fast as COVID-19. Chang goes on to state that we need to try to invest in people and the capacity of people by reconnecting communities to place, as this will shift the dynamics of rapid response. This includes our education, policy and infrastructure systems that need to be rooted in place. This helps to understand the radical changes that need to

take place in our social infrastructure to create better climate justice and resilience, especially in a place such as Scarborough.

In conclusion, this recommendation proposes how equitable and resilient climate change planning can be supported by developing inclusive social infrastructure and development. Vulnerable populations need infrastructure and resources to both adapt and thrive when faced with climate change risks (Dodman 2009, 7). Some of these infrastructure developments can include transit, housing, services, public space and similar resources to work towards resiliency, increased quality of life, and even economic growth (Dodman 2009, 7).

CHAPTER FIVE - Recommendation Three: Integrated and Local Planning Practices

The final recommendation focuses on merging climate adaptation plans, climate mitigation plans, and justice action, creating an integrated plan for localized communities. This recommendation aims to achieve unity in climate planning and make sure no goals are left behind in the process. The following evidence provides context to how this could function in a place such as Scarborough.

Recommendation and Proposed Solution

Recommendation Three: Justice action, climate adaptation, and climate mitigation must frame as "one." Merging these three problems into one multifaceted and localized planning solution can aid in achieving consistency and target specific goals. Planning for these issues needs to become more integrated and localized in order to succeed functionally.

Scarborough Context

During the Summer of 2020, working as a researcher for Dr. Laura Taylor, I directly viewed and analyzed numerous amounts of climate justice, adaptation, mitigation, and policy plans and reports across the Greater Golden Horseshoe in Ontario. The work consisted of researching online documents related to provincial, national and global climate change efforts and land use planning. The research organized and coded content for analysis, creating a database of climate change information with the advanced use of Excel. Team members were

each assigned a set of municipalities in the Greater Golden Horseshoe, and for each municipality a profile was created summarizing each plan, policy, and brief analysis. The end product is a comparative database of how climate planning is conducted across 21 upper- and single-tier municipalities, 89 lower-tier municipalities, totalling 110 municipalities in the Greater Golden Horseshoe (Neptis). One of the team's main findings was that climate plans and policies rarely intersected or were interrelated. Cities and regions with overall "strategies" or "models" that were all-encompassing, such as Barrie, Oakville, Guelph, had more tangible goals that were reported back on with landmark achievements or overall success. When reviewing the large-scale analysis, we found that many municipalities carried out many plans with different goals and highlights, with the result that many of which did not achieve their highlighted goals. This work sparked my interest in implementing unified and singular plans for municipalities due to these deficiencies found.

Toronto's climate plan is made up of current actions to prevent climate change. Less focus is on what to do once these changes occur and significant effects begin to show on the city, making the strategy a general climate plan rather than a focused mitigation or adaptation plan (City of Toronto, 2018). Although some goals are set for more extensive time frames, such as 2050, the policy lacks specificity on how to break down the goals into smaller objectives and actions (City of Toronto, 2018). The report does provide budget estimates, which is one of the essential parts of a climate plan; breaking down the budget, as providing realistic and attainable goals allows for a more substantial chance to achieve climate goals (City of Toronto, 2018). The report functions less like a climate adaptation plan but more as climate change goals (City of Toronto, 2018). When evaluating Toronto's climate reports, I found there is strength in the balance of researching climate history, assessing the current climate situation, and setting goals and adaptation plans for the future of climate change (City of Toronto, 2018). Despite being a climate plan, individuals are considered in more than one aspect of these goals and plans, showing signs of equity, inclusion, and justice (City of Toronto, 2019). My critique of this plan is that approaches to implementation in local community settings are not addressed fully. City-wide policies are very hard to implement, and although the *Resilience Strategy* attempts to address this, I believe secondary plans for each community (such as Scarborough) need to be

implemented. In terms of my recommendation, a specific Scarborough climate justice plan would be useful in addressing these concerns.

Specifically, the City of Toronto's climate change plan pledges an overall goal of reducing greenhouse gas emissions (GHG) levels 80% lower than 1990 levels in the year 2050 (City of Toronto, 2018). This pledge is in their climate adaptation and mitigation plan *TransformTO*, curated in April 2017 (City of Toronto, 2018). The plan encompasses short and long-term goals but focuses on three larger goals they list as "campaigns" (City of Toronto, 2018). Although many of the long-term goals are focused on mitigation, the short-term goals aim to focus on adaptation and resilience methods for the economy, infrastructure and resident health and safety (City of Toronto, 2018). An essential aspect of the Toronto plan(s) in Provincial efforts is an essential factor due to the local level lacking the finance and resources (Government of Ontario).

Some other specific ways the City of Toronto plans take climate justice into account are through their specialized reports concerning their *TransformTO* plan. *TransformTO* demonstrates a commitment to equity and climate justice, as highlighted through the title of their plan, *TransformTO: Climate Action for a Healthy, Equitable and Prosperous Toronto* (City of Toronto, 2018). The *TransformT*O climate action plan goes beyond the specific climate adaptation and mitigation plan. As stated, included are short-term goals, update reports, various resources, and other plan forms in various ways. Also included are Community Engagement Reports and, most importantly, climate justice, the *Equity & Engagement Report*. The Community Engagement Report served as a way to get Toronto residents involved in the process of a low-carbon future in Toronto (City of Toronto, 2018). Toronto reached out to over 2,000 residents, stakeholders, and other community actors over a year before creating the Official Plan (City of Toronto, 2018). Although this is a large cohort to consult for the planning process, as we learned from my first recommendation, numbers are less important than the actual impact and level of engagement these groups have.

Toronto’s goal is to create the most equitable plan possible. The City of Toronto compiled the feedback into a final report and kept this as a resource when creating the plan and

for use during update reports and short-term goals (City of Toronto, 2018). The *Equity & Engagement Report* was created to have the most straightforward idea of best designing and equitable climate solution and plan (City of Toronto, 2018). The USDN Building Diversity Fellowship in 2016 curated this report to include marginalized actors and equity groups to fully encompass climate justice is not just the creation of goals, but the execution of the goals (City of Toronto, 2018). The city has attempted to prove a commitment and effort to incorporate community, justice and equity in every stage of climate planning to receive the best results - but does this include Scarborough? (City of Toronto, 2018). The *Resilience Strategy* (2019) attempts to address this for future planning and resilience, and we can see where the implementation of this leads (City of Toronto, 2019). Despite this, Toronto's plan still lacks clarity in solidified efforts, goals and tactics. The plans also do not link climate efforts to justice and resilience efforts, which is a large gap. As analyzed earlier, the city should improve in developing ways to be more resilient and adapt to the climate changes to come in order to become better adequately prepared.

As discussed in previous sections, Scarborough has various secondary plans in place for specific areas and communities in Scarborough, rather than an "overall" plan for Scarborough. Unfortunately, there remain no specific and focused climate resilience and justice plans, not even separate reports that provide solutions for Scarborough at this time. When speaking to Scarborough resident and City of Toronto Transportation Planner Andrew Au, he speaks to these gaps in Scarborough with high-level plans leaving goals behind. Au discussed how high-level plans such as *TransformTO* and the *Resilience Strategy* cannot be implemented to achieve Scarborough goals effectively. We need climate and equity plans to have a policy structure that gives the plans ‘teeth’, and be able to achieve significant goals. Au states how a specific climate justice plan for Scarborough would be useful in filling these gaps. Au also states how my recommendation of integrated climate justice goals at a local level could be useful to integrate into Scarborough, or general, Secondary Plans across the cities, and even Zoning By-laws, as these changes could work to achieve change. This bottom-up approach could bridge the current gaps of climate and justice goals working separately and disconnected, when they should be inherently linked to achieve community resilience. The implementation of my recommendation

could solve this issue that not only Scarborough faces, but other North American municipalities as well.

New Orleans Background

New Orleans serves as an example for the 'worst case scenario,' characterizing lack of integration in planning (Holguín-Veras 2007, 78). New Orleans also serves as an example for outlining the 15 years post-Hurricane Katrina of work used to solve their planning integration and effectiveness issues (City of New Orleans, 2017). Although launching the world's first comprehensive city resilience strategy, titled *Resilient New Orleans*, it was a long pathway of achievement (U.S. Climate Resilience Toolkit, 2017). As discussed in Recommendation One of this paper (Chapter Three), 'bad' planning was one of the critical issues of the rebuilding process and the immediate response to the disaster of Katrina (Holguín-Veras 2007, 78). The residents and neighbourhoods had to therefore advocate for themselves, creating strong neighbourhood citizenship and resident power (Holguín-Veras 2007, 78). This recommendation attempts to solve the initial downfall and reason for the immense need of the community, independent planning at the time. Scholars and planners have demonstrated that there were two main issues with the plans and governance during this time, being a) a lack of adaptation, recovery plans and solutions pre-Hurricane Katrina that could be useful post-disaster; and b) competing plans and policies from the same, and different levels of government post-disaster, during the recovery period (Kates et al., 2006, 14656). The proposed recommendation seeks to learn from these two downfalls in the New Orleans context by creating robust, unified and *integrated* plans for the City of Toronto to impose, especially in vulnerable areas of the city such as Scarborough.

For this recommendation, the context of problem b) competing plans and policies from the same and different levels of government post-disaster during the recovery period is explored in greater detail. In the article "Reconstruction of New Orleans after Hurricane Katrina: A research perspective" by R. W. Kates, C. E. Colten, S. Laska, and S. P. Leatherman (2006), the authors highlight a specific section to their analysis underlining the 'Conflicting Goals and Differential Outcomes of Reconstruction' in the recovery of New Orleans after Hurricane Katrina. The article recaps the experiences of the 'competing' plans and processes from different levels of governments, commissions, the mayor, and other parties that created a divide and no

significant relief or solutions (Kates et al., 2006, 14656). In this article, published about one year post-disaster, the authors reflect how a 'unified planning process' and independent planning, as discussed in my Recommendation One (Chapter Three), had taken over due to the lack of integration and harmony of solutions (Kates et al., 2006, 14656). The authors also found that many of the plans either focused on mitigation, adaptation, recovery or resilience (this goal the least demonstrated throughout) and how this made the process of recovery post-Hurricane Katrina much more complicated and staggered (Kates et al., 2006, 14656). The City of Toronto can take lessons and notes from the usefulness of integrating plans and processes to encompass climate mitigation and adaptation planning, but how vital resilience and recovery are in the context of climate planning.

New Orleans plans (or lack of) struggled to prevent the effects of Hurricane Katrina and recover from them. The book "Louisiana's Response to Extreme Weather: A Coastal State's Adaptation Challenges and Successes," edited by Shirley Laska, discusses the idea of integrated planning practices for just and resilient adaptation planning and how this could have solved the identified issues. In Chapter Two, authored by Donald F. Boesch, they state: "The disastrous effects of Hurricane Katrina and Rita in 2005 made it clear that deterioration of coastal environments had increased storm surge risks and threatened the very existence of many coastal communities. This realization has required a more integrated and simultaneous approach to planning and implementing the protection of society and restoring the environment" (Boesch 2006, 42). Other chapters in the book also aim to discuss how integrated planning plays a role in the betterment of planning solutions. Targeting justice, adaptation, mitigation, and resilience can create more efficient processes to reach these goals (S. A. Hemmerling et al. 2006, 119). Framing these goals as "one" also makes achieving the goal easier and coherent for those implementing it (S. A. Hemmerling et al. 2006, 119). New Orleans' experiences serve as a critical example. However, the events are extreme, of the importance of a unified and integrated planning process to achieve just climate planning and resilience.

As discussed, in an interview with Melissa S. Lee, Director of Planning and Community Engagement of Concordia in New Orleans, Louisiana, she spoke of the efforts of the Unified New Orleans Plan. This plan was drafted after Hurricane Katrina and Hurricane Rita with the

work of herself and her firm, after two failed attempts of a post-disaster plan and what the resettlement plan would look like. A key feature of this plan was the unique format that it provided. The plan is made up of a Citywide Recovery Plan to encompass the entirety of New Orleans and aid in general resettlement and recovery of the city, and twelve District Plans, functioning as stand-alone plans. The District Plans have specific goals for each community and provide a resilience guide and plan to achieve climate resilience and recovery, but all twelve plans work towards achieving the larger goals set in the Citywide Recovery Plan. Lee outlined the importance of the localized plans targeting goals for each community, but how the high-level plan also worked to achieve larger goals of recovery. Lee also shed light on LASafe (Louisiana's Strategic Adaptations for Future Environments) which is a grassroots project to target parishes (wards) in achieving climate justice and resilience, at a community based level. A great takeaway that Lee provided is how important communities are, and cultivating local leadership to try and service communities and vulnerable residents best. It is clear through the New Orleans experience that integrated and local planning practices can help fill in the gaps and create tangible solutions.

Vancouver Background

Vancouver's climate adaptation policy has a history of attempts and growth. The city creates concrete goals to reduce climate change and reduce the current effects (City of Vancouver). A barrier in achieving some of these goals includes a need for cooperation and permission from the Provincial government to go forward with different initiatives and a lack of funding (City of Vancouver). Although not the same type of plan, when understanding goals of this paper, the most recent plan creation is the *City of Vancouver Climate Emergency Action Plan* (2020), which aims to target adaptation, mitigation, and justice. The plan is well equipped for change, problems, progress and various outcomes that could occur. An essential aspect of the plan is the monthly and yearly follow-ups. This includes evaluations and updates to the plan as circumstances may change and many unprecedented events could occur (City of Vancouver). An essential feature of this plan is the "detailed action" portion that sets out each point of action, the reason for the action, the current step it is in, and the financial details (City of Vancouver). This type of detail and accountability gears itself for meeting significant goals and creating an adaptation plan well equipped for climate changes. This additional case study example helps

underline how an all-encompassing plan can target specific adaptation goals, mitigation and justice, but under a unified strategy.

Scholarly Evidence

Models of integrated climate planning do exist. The article "Pursuing Equity and Justice in a Changing Climate: Assessing Equity in Local Climate and Sustainability Plans in U.S. Cities" (Schrock et al. 2015) may aid in this process when looking forward to my recommendation. The authors found that a lack of capacity and tools make achieving climate justice more challenging in different areas across North America (Schrock et al. 2015, 283). They examine various case studies which show how lack of capacity and resources are a significant factor in not incorporating climate justice as a primary goal in climate change goals (Schrock et al. 2015, 285). United States planners consider climate and social policies as two separate models, as opposed to Sweden, where they practice the model where climate justice and climate change are inherently incorporated. This model helps to understand how merging these policies could be useful in practice; and having climate and social policy mainstreaming into one (Schrock et al. 2015, 285). This integrated model seems to have more effectiveness than approaching it as two separate policies (Schrock et al. 2015, 285). This helps to curate the best possible method of incorporating climate justice in climate adaptation plans. I also believe that planners often view these concepts as separate, disconnected policies which need to interact and work together. Instead, this viewpoint suggests we converge these policies to act as one whole policy, filling holes and working together (Schrock et al. 2015, 285). This has been successful in Scandinavian countries and may prove successful in the North American and Canadian context for increasing climate justice (Schrock et al. 2015, 290). This article helped develop my approach to the concept of climate justice in my research as the struggle to achieve equity during a climate crisis, as the effects of climate justice affect vulnerable populations at a much higher level. Climate justice efforts aim to address these issues and acknowledge and protect these populations through the planning process.

Social equity and climate change are not well integrated. Drawing on the article "Climate Adaptation as Strategic Urbanism: Assessing Opportunities and Uncertainties for Equity and Inclusive Development in Cities" by Eric Chu et al. (2016), I find that urban actions on climate

change try to increase policy framing, collaboration, coalitions among actors, and other strategies, but these strategies do not take into account climate justice or equity; instead, they have a strong focus on development and entrenched interests (Chu, Anguelovski & Roberts 2016, 380). A significant downfall is an intense focus on the tension and problems within the climate adaptation planning process, making it difficult to focus on those affected by the lack of climate justice in these plans (Chu, Anguelovski & Roberts 2016, 380). The lack of shared goals among various actors (different levels of government, etc.) within the policy process of creating climate adaptation plans creates a gap in achieving climate equity (Chu, Anguelovski & Roberts 2016, 382). The authors of this article suggest that cities are not completing a full assessment of opportunities and constraints, as well as targeting certain actors and locations, which leads to climate adaptation plans that do not focus on or address climate justice and climate equity (Chu, Anguelovski & Roberts 2016, 385).

Using my analysis from this article can help me understand the importance of collaboration between various actors, stakeholders and the community (Chu, Anguelovski & Roberts 2016, 383). This article sheds light on the problems that arise when ignoring consultation and equity. In particular, climate plans need to take on ideas beyond climate planning or development interests and connect them with social justice policy (Chu, Anguelovski & Roberts 2016, 383). In addition, "[c]hallenges around equity and inclusiveness are prompting cities to identify more transformative adaptation visions that remedy patterns of unjust or unsustainable development" (Chu, Anguelovski & Roberts 2016, 385), which is what I see as the challenge for suburban retrofitting. Based on the article, I suggest communication and collaboration between all affected actors prevent gaps and fill the missing spaces, whether enhanced climate science, increased climate justice, or better finance and budgeting tools (Chu, Anguelovski & Roberts 2016, 382).

Separation of plans and policies can negatively affect achieving climate and justice goals. The final author to be discussed for this recommendation is Perspectives on Climate Change: Science, Economics, Politics, Ethics: Adaptation, Mitigation and Justice by Dale Jamieson (2005), which explores the framing of adaptation and mitigation climate planning as one can help achieve goals consecutively. Although this paper analyzes unintegrated climate plans

globally and compares the burden climate change effects have on high wealth and low wealth countries, the author provides an interesting argument of a 'moral risk' to separate climate plans (Jamieson 2005, 223). The argument states how separate plans and policies do not provide adequate solutions or strategies for disasters and general climate effects and are relatively slow and bog the process down (Jamieson 2005, 223). Although this recommendation uses a local, municipal analysis, we can see how this argument stands true in areas such as New Orleans. It was discussed how difficult and slow the response to Hurricane Katrina was. New Orleans, unfortunately, had to alter their plans in a more complex way, in response to a disaster, rather than proactive planning and policies in place (City of New Orleans, 2017). Furthermore, some argue that the city is still recovering due to a lack of coherent planning over 15 years post-disaster (Toldson et al. 2011, 362).

These authors have all discussed how a mixed and integrated policy and planning approach works well. While I think integrated plans are the most equitable, others argue that separate plans and policies as an approach offer more focused and specific solutions. Another interesting point highlighting that argument is the caution towards integrated planning practices, discussed by Meg Holden in "Is Integrated Planning Any More Than the Sum of Its Parts?: Considerations for Planning Sustainable Cities" (2012). Using international examples, Holden discusses integration as a more common strategy to battling and achieving just and resilient climate planning (Holden 2012, 310). Holden also discusses the downfalls to this practice, stating that planners may overlook specific targets and goals, and a shared vision is challenging to achieve (Holden 2012, 310). Although that may be true in some cases, mitigation, adaptation, resilience and justice are achievable when working simultaneously rather than in a parallel fashion. They may all have different goals to reach, but a unified plan would help bridge these goals and make them symbiotic rather than consecutive. Furthermore, when proposed Recommendation One in Chapter Three of this paper, integrating community voices and engagement is applied simultaneously (Kates et al., 2006, 14656). This may work towards avoiding the downfalls Holden and other authors advise against.

Recommendation Goals

The merging of climate and social policy bridges and fills the gaps that climate plans are currently experiencing (Schrock et al., 285). The model currently used by the City of Toronto, approaching social and climate policy separately, does not cover all the bases that need to be covered (Schrock et al., 285). Toronto's climate plan has done an excellent job identifying the need for equity and attempting to engage both marginalized groups and equity groups, especially through the *Resilience Strategy* (City of Toronto, 2019). However, there are still missing pieces that do not bridge climate and justice together, as well as target local communities. A total merging of the policies allows the plans to work together and achieve similar goals (Schrock et al., 285). Toronto's method is starting on the correct steps by showing the need for more equity communication, and the way to best increase equity would be full incorporation (City of Toronto, 2019). Due to the Canadian welfare state system, this method would not be as complicated in a Canadian context (Schrock et al., 283). The ideologies and methods would function and behave similarly to any other policy within the country, among all levels of government (Schrock et al., 290). Therefore, merging social and climate policy can fill the gaps and increase the effective strategies and climate adaptation plans. Implementing this at a local level, whether through area-specific (such as Scarborough) plans, or through Secondary Plans and Zoning Bylaws, could work towards achieving better climate justice.

Based on the background of New Orleans, it is essential to start implementing integrated and localized climate justice plans in vulnerable areas in the City of Toronto, such as Scarborough. During an interview with the planner Sophie Plotell at the City of Toronto, I was able to gain insight into the plan-building process. Plotell has worked on the *TransformTO* Climate Plan for the City of Toronto, in the Energy and Environment Division, for three years. Plotell shed light on the planning process of *TransformTO*, Toronto's comprehensive climate strategy, and how the plan aims to have lengthy mitigation and emissions strategies. She advised that staff look at specific areas and communities to supplement higher-level plans. Furthermore, Plotell advised that numerous reports and studies are in process to help cover all the bases of good climate planning. These include co-benefits and co-harms of climate actions, an equity action team and procedural equity processes, recovery & rebuilding reports, and other modelling and actions to better address all aspects of just climate planning - beyond just mitigation.

The City of Toronto's goals to incorporate all aspects of climate planning sound promising, although there are still missing items that I feel should be in place to achieve the goals they have set out. *TransformTO* and the *Resilience Strategy* should a) Integrate their reports and studies that examine emissions, adaptation, resilience and equity into their final *TransformTO* plan and the *Resilience Strategy* to create an integrated and cohesive final plan that is also accessible for usage; and b) Elaborate and advance on creating plans and strategies for specific areas and communities - one being Scarborough as a whole - in order for the plan to speak beyond the downtown core and encompass all of the City of Toronto. These two solutions of the proposed recommendation would help achieve integration and avoid New Orleans' past mistakes.

In conclusion, the recommendation proposed that justice action, climate adaptation and climate mitigation be framed as "one", and be implemented locally. Merging these three problems into one multifaceted planning solution can aid in achieving the consistency of the respective goals (Schrock et al. 2015, 285). A local climate justice resilience plan for Scarborough could achieve this. This chapter proposed how planning for these issues needs to become more integrated to succeed functionally and function based on New Orleans' experience and Scarborough's current context.

Conclusion and Next Steps - Final Recommendation

Summary

In this paper, I analyzed and assessed just and resilient planning processes and lessons from post-Hurricane Katrina New Orleans as inspiration to address the current problems the suburban area of Scarborough in the City of Toronto is facing. This case study provided lessons and helped me to create a series of interconnected recommendations to improve climate justice for Scarborough. Throughout this paper, the guiding research questions were: 1) In what ways can climate change planning be more equitable and resilient? Furthermore, 2) How can plans, processes and interventions support equitable and resilient climate change planning? My research led to three proposed recommendations: a) Community-Based Planning, b) Inclusive Social Infrastructure, and c) Integrated and Local Planning Practices. These were developed

based on both the mistakes and achievements of climate planning in New Orleans, approaches suggested through scholarly research, and my consideration of the utility to Scarborough's planning problems today.

Now that I have proposed these approaches and recommendations to promote better planning in Scarborough, a good next step would be to learn and understand more about suburban history to inform the planning process better and highlight the differences across New Orleans and Scarborough. With the further development of the City of Toronto's TransformTO plan, the Resilience Strategy and other strategies discussed, completing a further analysis of the plan's implementation would also help follow step recommendations. This paper sets a good groundwork of knowledge for the New Orleans and Scarborough areas. It can help provide lessons to other municipalities in North America and deepen the analysis of Scarborough. It would help dissect the intricacies of disaster planning in Scarborough and how areas such as the Scarborough Bluffs play a role in increased risk for climate change planning (Filion 2001, 142).

Final Recommendation - Direction for Future Research

Although this paper set out to provide a background and analysis of just climate planning, ideally, there are more ideas for future research in this area and topics that would be useful to develop this strategy for future scholarly research and practice. Beyond the facets of limited time and resources for this study, some questions that arose for this research as I was writing were: 1) Can local plans and processes obtain more power on the global scale to solve climate change? (I think maybe they can); and 2) How can National and Provincial (upper-tier) governments work with municipal, local governments to achieve climate planning goals better? I think a joint effort could have a stronger impact in achieving climate goals, instead of working on separate efforts. Joint resources could also assist in achieving this. If I were now to draft a more comprehensive research proposal, analysis into how to support better intersectional planning processes among different levels of government might help attempt to solve the problems that already exist at the local level. Essentially, this line of questioning leads to governance questions and how different levels of governments play a role in both barriers and opportunities to achieving resilient climate change mitigation and adaptation goals (Aylett 2014, 9). Climate justice is a problem of governance because Scarborough is a city in itself but categorized only as an area of Toronto.

Understanding the implications of this further would help draft recommendations and solutions. The article "The Governance of Climate Change Adaptation: Are Networks to Blame for the Implementation Deficit?" by Danny Bednar, Daniel Henstra & Gordon McBean (2019) discusses this implementation deficit and struggle that I propose, but at a policy-based level. A local planning level analysis would be helpful.

Based on the work done and what I believe could fill the gaps, my final overarching recommendation lies in understanding and dissecting the role of governance in the climate planning process and how it acts as a barrier to local municipal climate efforts. Furthermore, the role land economics and politics play in governance would be helpful to explore (Aylett 2014, 9). Although I did not set out to write my paper about governance, this connection has been made throughout the paper and can be helpful for the next steps of this research. Further work on this would consider the role of municipal governance in climate change efforts and what level of government might be the best structure or approach to deal with these things. As we can tell from the research presented, governance seems to be a structural problem that Scarborough and New Orleans face. A study completed by ICLEI (Local Governments for Sustainability) and MIT in 2014, titled "Progress and Challenges in the Urban Governance of Climate Change: Results of a Global Survey," outlined how governance functions ineffectively to achieving climate goals and how more power to local responses could achieve better results (Aylett 2014, 9). However, a high-level study, researching deeper into a specific case study example, would be helpful for practical recommendations.

Concluding Thoughts

The proposed research contribution I set out to make in this paper was to directly address the research questions with solutions for planners and policymakers to utilize and further understand the intersection of geography, race, and income on vulnerable populations in urban areas. The effects of climate change significantly and disproportionately affect vulnerable groups such as homeless and low-income groups who cannot deal with extreme heat and cold, drought, and flooding (Bulkeley 2013, 916). Vulnerable populations are the canaries in the coal mine in terms of climate change, and we already see a displacement of these populations (Bulkeley 2013,

916). Despite efforts to incorporate justice in climate adaptation and mitigation processes, significant deficiencies further perpetuate these inequities.

This paper adds to the debate of just climate planning and resiliency and how best to achieve this in vulnerable areas with vulnerable communities. The case study analysis of Scarborough attempted to shine a light on less studied and peripheral areas of cities and the implications of this on planning and policymaking (Fiedler 2011, 72). Using scholarly literature that discussed the lessons and experiences of New Orleans, the vulnerability and racialization of Scarborough, and just climate planning tools, my work aimed to add large suburban communities and cities to the climate equity planning debate and acknowledge three main problems that these communities are facing. For practice, this research suggests recommendations and solutions for planners and policymakers and proposes a more significant governance issue that municipal governments face in North America, and specifically Canada (Aylett 2014, 9). The final recommendation provides more possibilities for just, and resilient climate planning tactics for municipalities moving forward and proposes a further case study into the problems that manifest in governance complexities.

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